PIONEER®
The Art of Entertainment

Service Manual

ORDER NO.
CRT2018

HIGH POWER CD PLAYER WITH FM/AM TUNER

DEH-535-W

UC

COMPACT
disc
DIGITAL AUDIO

EXPLODED VIEWS AND PARTS LIST

PACKING

● **PARTS LIST(Page 3)**

＊ : Non spare part

Mark	No.	Symbol & Description	Part No.	
			DEH-535/UC	DEH-535-W/UC
	1	Carton	CHG3250	CHG3249
	2-1	Owner's Manual	CRD2269	CRD2380
	2-2	Installation Manual	CRD2270	CRD2381
	5	Polyethylene Bag	CEG1173	CEG-162
	7	Inner Box	Not used	CHW1628
	8	Remote Control Unit	CXB1225	Not used
	9	Battery	CEX1030	CEX1006
	12	Base Assy	Not used	CEA2354
	12-1	Polyethylene Bag	Not used	CZE3188
＊	13	Bracket Assy	Not used	CEA2346
	14	Contain Box	CHL3250	CHL3249
	15	Bracket	Not used	CZN6467
	16	Screw Assy	Not used	CZE3198
	17	Screw	Not used	BPZ30P100FZK
	18	Screw	Not used	BNC40P120FZK
＊	19	Polyethylene Bag	Not used	CZE3201
＊	20	Polyethylene Bag	Not used	CEG-127
		Remote Control Assy	Not used	CXB1163

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K-ZEA. APR. 1997 Printed in Belgium

EXTERIOR

● PARTS LIST(Page 6)

＊ : Non spare part

Mark	No.	Symbol & Description	Part No.	
			DEH-535/UC	DEH-535-W/UC
	41	Detach Grille Assy	CXA9617	CXB1214
	43	Button(EJECT)	CAC4875	CAC4898
	44	Button(1-6)	CAC4876	CAC5137
	46	Button(∧, <)	CAC4878	CAC5302
	47	Button(VOLUME)	CAC4879	CAC4899
	50	Button(DETACH)	CAC4883	CAC5138
	51	Button(SOURCE)	CAC5021	CAC5303
	53	Cover	CNS4208	CNS4440
	56	Keyboard Unit	CWM5017	CWM5371
	57	LCD	CAW1393	CAW1431
	64	Grille Unit	CXA9762	CXB1116
	77	Panel	CNS4209	CNS4456
	88	Panel	CNS4200	CNS4436
	95	Remote Control Unit	CXB1225	Not used
	96	Cover	CNS4139	Not used
	97	Panel Unit	CXB1401	＊ CXB1282
		Cover	Not used	CNM4710
		Remote Control Assy	Not used	CXB1163
		Battery Cover	Not used	CNS4453

ELECTRICAL PARTS LIST

● PARTS LIST(Page 48)

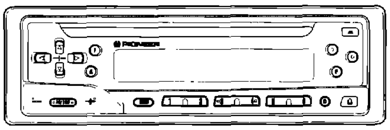
Keyboard Unit

Symbol & Description	Part No.	
	DEH-535/UC	DEH-535-W/UC
D1821, 1822 LED	CL220PGC	CL220D
D1824, 1825 LED	CL170PGCD	CL170DCD
D1826, 1827 LED	CL170PGCD	CL170DCD
D1828, 1829 LED	CL170PGCD	CL170DCD
D1830, 1831 LED	CL170PGCD	CL170DCD
S1801, 1803 Push Switch	CSG1085	CSG1079
S1802, 1805 Push Switch	CSG1086	CSG1080
S1804, 1806 Push Switch	CSG1084	CSG1078
S1809, 1811 Push Switch	CSG1085	CSG1079
S1810, 1812 Push Switch	CSG1086	CSG1080
S1815, 1820 Push Switch	CSG1084	CSG1078
S1816 Push Switch	CSG1085	CSG1079
S1817 Push Switch	CSG1086	CSG1080
S1821 Push Switch	CSG1084	CSG1078
LCD	CAW1393	CAW1431

Service Manual

PIONEER®
The Art of Entertainment

DEH-635R/EW



ORDER NO.
CRT2020

HIGH POWER CD PLAYER WITH RDS TUNER

DEH-635R EW
DEH-535R EW
DEH-534R EW

COMPACT disc DIGITAL AUDIO

- **See the separate manual CX-597(CRT1829) for the CD mechanism description, disassembly and circuit description.**
- **The CD mechanism employed in this model is one of CX-597 series.**

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● CD Player Service Precautions

1. For pickup unit(CXX1230) handling, please refer to"Disassembly"(CX-597 Service Manual CRT1829). During replacement, handling precautions shall be taken to prevent an electrostatic discharge(protection by a short pin).
2. During disassembly, be sure to turn the power off since an internal IC might be destroyed when a connector is plugged or unplugged.
3. Please checking the grating after changing the service pickup unit(see page 52).
4. This device employs an inverter as the power supply for the EL. Utmost cars should be used not to suffer from a possible electric shock, accordingly.

1. SAFETY INFORMATION

1. **Safety Precautions for those who Service this Unit.**

- **When checking or adjusting the emitting power of the laser diode exercise caution in order to get safe, reliable results.**

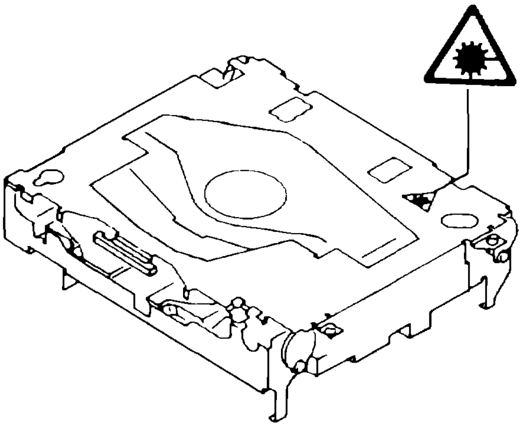
Caution:

1. **During repair or tests, minimum distance of 13cm from the focus lens must be kept.**
2. **During repair or tests, do not view laser beam for 10 seconds or longer.**

2. **A "CLASS 1 LASER PRODUCT" label is affixed to the rear of the player.**

CLASS 1
LASER PRODUCT

3. **The triangular label is attached to the mechanism unit frame.**



4. **Specifications of Laser Diode**

Specifications of laser radiation fields to which human access is possible during service.
Wavelength = 800 nanometers

2. EXPLODED VIEWS AND PARTS LIST

2.1 PACKING

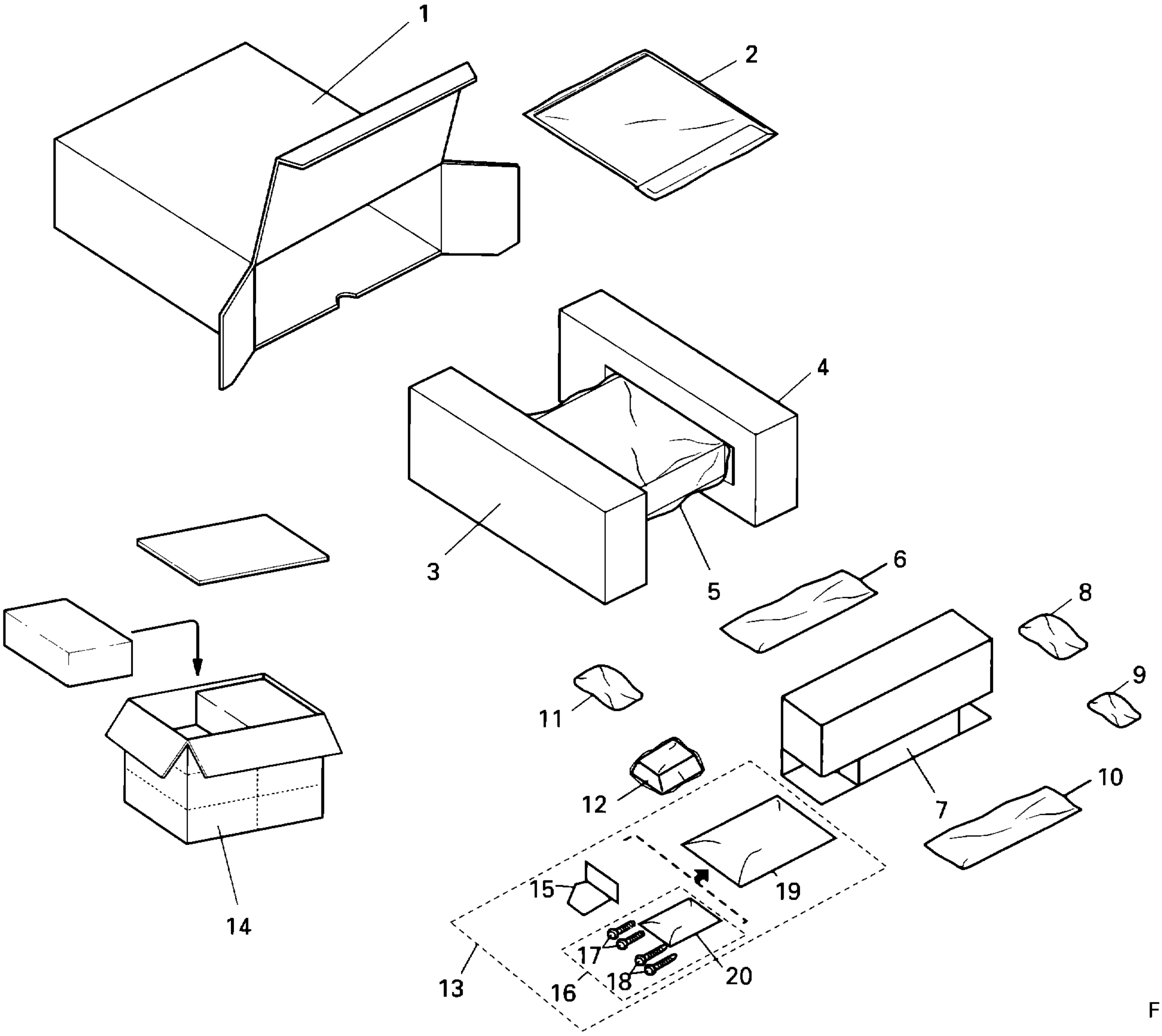

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Fig. 1

NOTE:

- Parts marked by " * "are generally unavailable because they are not in our Master Spare Parts List.
- Screws adjacent to ▼ mark on the product are used for disassembly.

● Parts List

Mark	No.	Symbol & Description	Part No. DEH-635R/EW	DEH-535R/EW	DEH-534R/EW
	1	Carton	CHG3241	CHG3247	CHG3248
	2-1	Owner's Manual	CRD2256	CRD2260	CRD2260
	2-2	Owner's Manual	CRD2257	CRD2261	CRD2261
	2-3	Owner's Manual	CRD2258	CRD2262	CRD2262
	2-4	Installation Manual	CRD2259	CRD2263	CRD2263
*	2-5	Label	CRW1343	CRW1343	CRW1343
	2-6	Passport	CRY1013	CRY1013	CRY1013
*	2-7	Warranty Card	CRY1087	CRY1087	CRY1087
	2-8	Polyethylene Bag	CEG1116	CEG1116	CEG1116
	3	Protector	CHP1766	CHP1766	CHP1766
	4	Protector	CHP1767	CHP1767	CHP1767
	5	Polyethylene Bag	CEG-162	CEG-162	CEG-162
	6	Cord Assy	CDE5325	CDE5328	CDE5328
	7	Inner Box	CHW1628	Not used	Not used
	8	Remote Control Assy	CXB1160	Not used	Not used
	9	Battery	CEX1006	Not used	Not used
	10	Case Assy	CXB1063	CXB1063	CXB1063
	11	Accessory Assy	CEA1917	CEA1917	CEA1917
	12	Base Assy	CEA2344	Not used	Not used
	12-1	Polyethylene Bag	CZE3188	Not used	Not used
*	13	Bracket Assy	CEA2346	Not used	Not used
	14	Contain Box	CHL3241	CHL3247	CHL3248
	15	Bracket	CZN6467	Not used	Not used
	16	Screw Assy	CZE3198	Not used	Not used
	17	Screw	BPZ30P100FZK	Not used	Not used
	18	Screw	BNC40P120FZK	Not used	Not used
*	19	Polyethylene Bag	CZE3201	Not used	Not used
*	20	Polyethylene Bag	CEG-127	Not used	Not used

● Owner's Manual, Installation Manual

Model	Part No.	Language
DEH-635R/EW	CRD2256	English, Spanish
	CRD2257	German, French
	CRD2258	Italian, Dutch
	CRD2259	English, Spanish, German, French, Italian, Dutch
DEH-535R/EW DEH-534R/EW	CRD2260	English, Spanish
	CRD2261	German, French
	CRD2262	Italian, Dutch
	CRD2263	English, Spanish, German, French, Italian, Dutch

● Accessory Assy

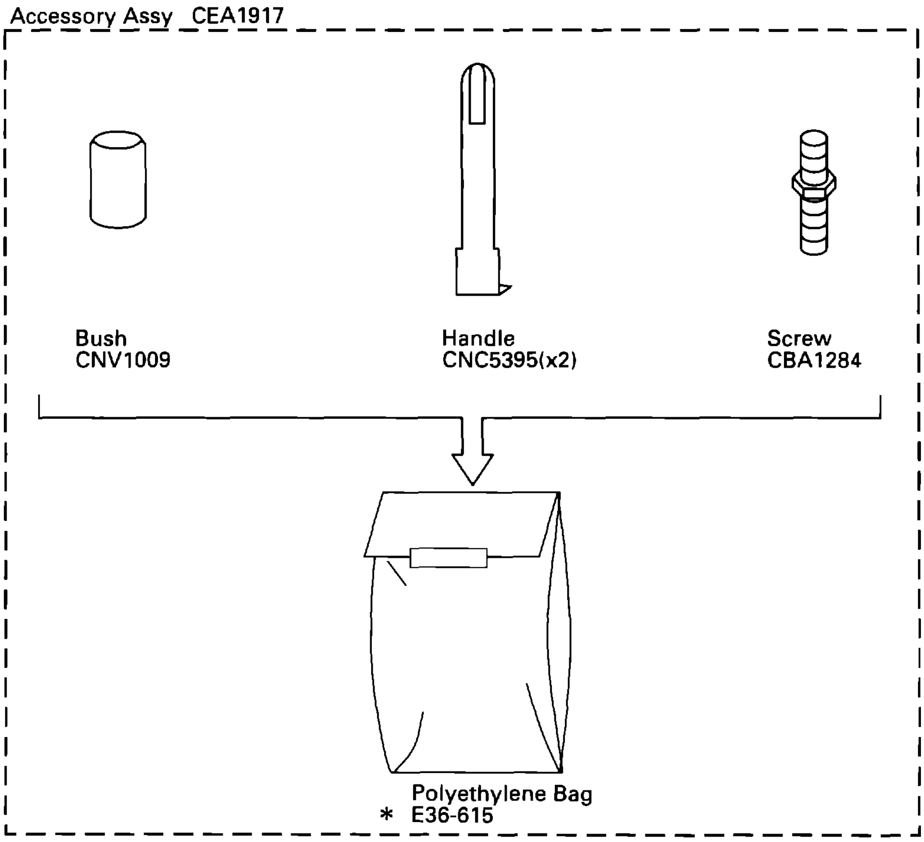
Accessory Assy CEA1917
Bush
CNV1009
Handle
CNC5395(x2)
Screw
CBA1284
Polyethylene Bag
* E36-615

Fig. 2

2.2 EXTERIOR

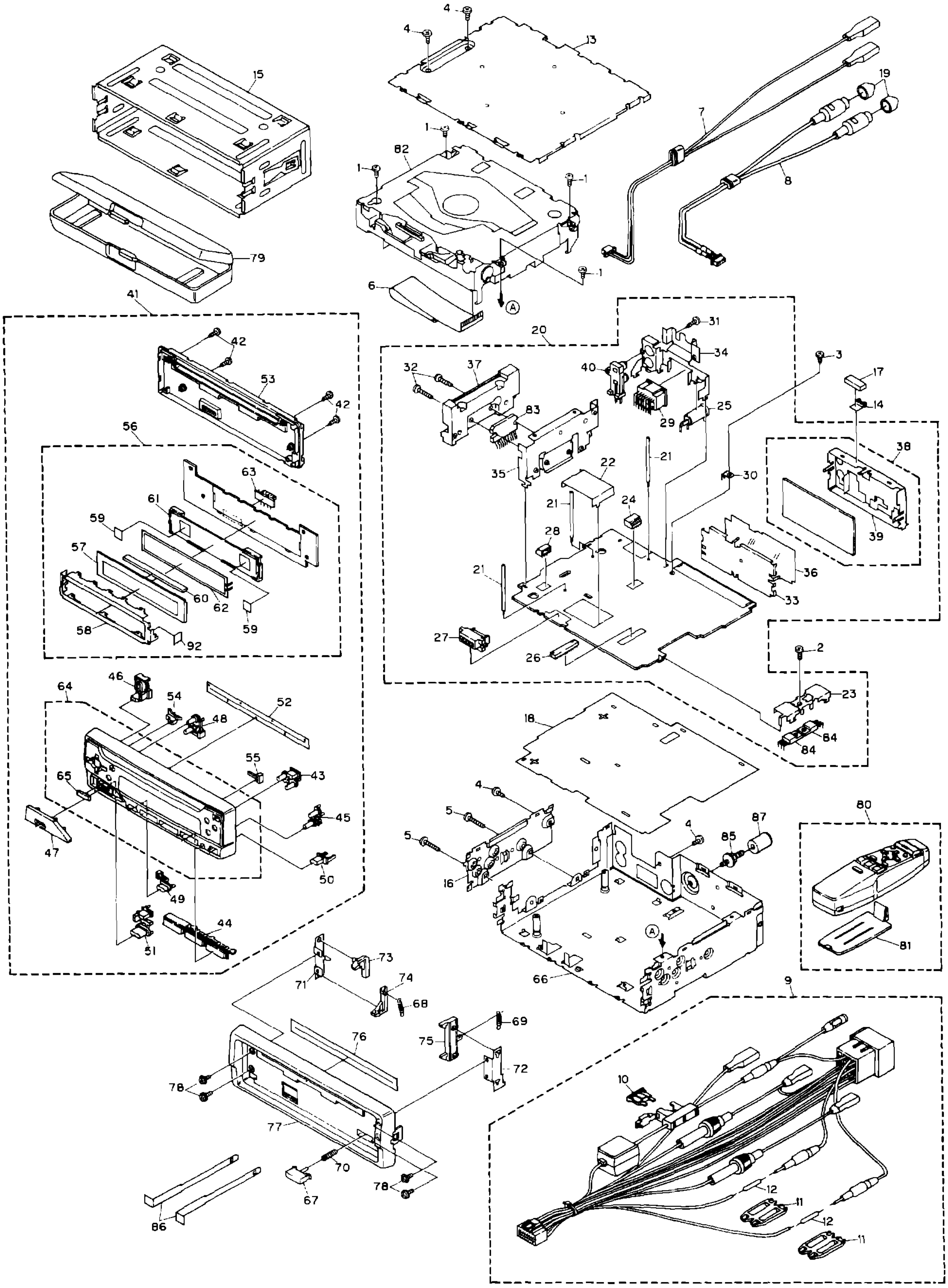
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Fig. 3

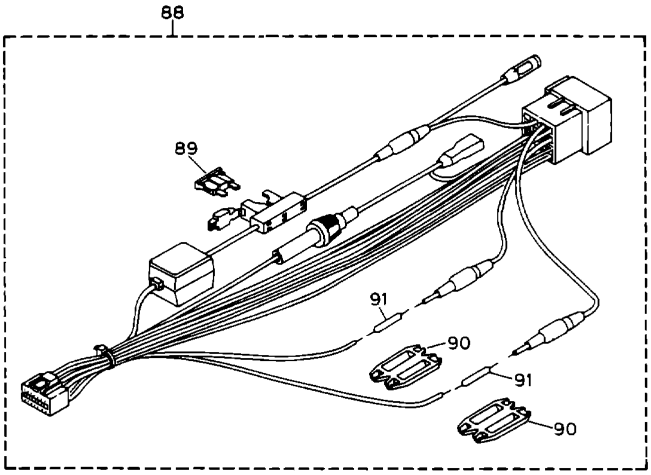
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Fig. 4

(1)PARTS LIST

Mark	No.	Description	Part No.
	1	Screw	BSZ26P050FMC
	2	Screw	ASZ26P080FMC
	3	Screw	BSZ30P055FUC
	4	Screw	BSZ30P060FMC
	5	Screw	BSZ30P180FMC
	6	Cable	CDE4869
	7	Cord Assy	See Contrast table(2)
	8	Cord Assy	See Contrast table(2)
	9	Cord Assy	See Contrast table(2)
	10	Fuse	See Contrast table(2)
	11	Cap	See Contrast table(2)
	12	Resistor	See Contrast table(2)
	13	Case	CNB2119
	14	Holder	CNC6469
	15	Holder	CNC6798
	16	Holder	CNC6862
	17	Cushion	CNM4870
	18	Insulator	CNM5053
	19	Cap	See Contrast table(2)
	20	Tuner Amp Unit	See Contrast table(2)
	21	Clamper	See Contrast table(2)
	22	Holder	CNC5968
	23	Holder	CNC6132
	24	Connector(CN254)	See Contrast table(2)
	25	Antenna Jack(CN502)	CKX1056
	26	Connector(CN651)	CKS2228
	27	Connector(CN801)	CKS3581
	28	Connector(CN851)	See Contrast table(2)
	29	Plug(CN901)	CKM1187
	30	Wrapping Terminal(CN501)	CKF1059
	31	Screw	BPZ26P080FMC
	32	Screw	BSZ26P140FMC
	33	Holder	CNC6356
	34	Holder	See Contrast table(2)
	35	Holder	CNC7006
	36	Insulator	CNM4684
	37	Heat Sink	CNR1434
	38	FM/AM Tuner Unit	CWE1416
	39	Holder	CNC6555
	40	Pin Jack(CN253)	CKB1028
	41	Detach Grille Assy	See Contrast table(2)
	42	Screw	BPZ20P100FZK
	43	Button(EJECT)	CAC4875
	44	Button(1-6)	CAC4876
	45	Button(PGM)	CAC4877
	46	Button(∧, <)	CAC4878
	47	Button(VOLUME)	CAC4879
	48	Button(A, F)	CAC4880
	49	Button(BAND)	CAC4881
	50	Button(DETACH)	CAC4883
	51	Button(SOURCE)	CAC5021
	52	Cover	CNM4704
	53	Cover	CNS4208
	54	Lighting Conductor	CNV4799
	55	Lighting Conductor	CNV4800
	56	Keyboard Unit	See Contrast table(2)
	57	LCD	See Contrast table(2)
	58	Holder	CNC6864
	59	Film	CNM4349
	60	Connector	CNV4770
	61	Housing	CNV4797
	62	EL(IL1801)	CEL1489
	63	Connector(CN1801)	CKS3580
	64	Grille Unit	See Contrast table(2)
	65	Cushion	CNM5156
	66	Chassis Unit	See Contrast table(2)
	67	Button	CAC5180
	68	Spring	CBH1834
	69	Spring	CBH1835
	70	Spring	CBH1996
	71	Bracket	CNC6135
	72	Bracket	CNC6791
	73	Arm	CNV4692
	74	Arm	CNV4693
	75	Arm	CNV4951
	76	Cover	CNM4875
	77	Panel	CNS4452
	78	Screw	IMS20P030FZK
	79	Case Assy	CXB1063
	80	Remote Control Assy	See Contrast table(2)
	81	Battery Cover	See Contrast table(2)
	82	CD Mechanism Module	CXK5001
	83	IC(IC201)	TDA7386
	84	Transistor(Q951, 971)	2SD2396
	85	Screw	CBA1284
	86	Handle	CNC5395
	87	Bush	CNV1009
	88	Cord Assy	See Contrast table(2)
	89	Fuse	See Contrast table(2)
	90	Cap	See Contrast table(2)
	91	Resistor	See Contrast table(2)
*	92	Spacer	CNM5379

(2) CONTRAST TABLE

DEH-635R/EW, DEH-535R/EW and DEH-534R/EW have the same construction except for the following:

Mark	No.	Symbol & Description	Part No.		
			DEH-635R/EW	DEH-535R/EW	DEH-534R/EW
	7	Cord Assy	CDE5185	Not used	Not used
	8	Cord Assy	CDE5209	Not used	Not used
	9	Cord Assy	CDE5325	Not used	Not used
	10	Fuse(10A)	CEK1136	Not used	Not used
	11	Cap	CNS1472	Not used	Not used
	12	Resistor	RS1/2P102JL	Not used	Not used
	19	Cap	CNV2680	Not used	Not used
	20	Tuner Amp Unit	CWM5004	CWM5009	CWM5009
	21	Clamper	CEF1009	Not used	Not used
	24	Connector(CN254)	CKS3598	Not used	Not used
	28	Connector(CN851)	CKS3597	Not used	Not used
	34	Holder	CNC6884	CNC6888	CNC6888
	41	Detach Grille Assy	CXA9614	CXA9619	CXB1215
	56	Keyboard Unit	CWM5014	CWM5019	CWM5372
	57	LCD	CAW1392	CAW1432	CAW1433
	64	Grille Unit	CXA9701	CXA9766	CXB1117
	66	Chassis Unit	CXA9661	CXA9663	CXA9663
	80	Remote Control Assy	CXB1160	Not used	Not used
	81	Battery Cover	CNS4406	Not used	Not used
	88	Cord Assy	Not used	CDE5411	CDE5411
	89	Fuse(10A)	Not used	CEK1136	CEK1136
	90	Cap	Not used	CNS1472	CNS1472
	91	Resistor	Not used	RS1/2P102JL	RS1/2P102JL

2.3 CD MECHANISM MODULE

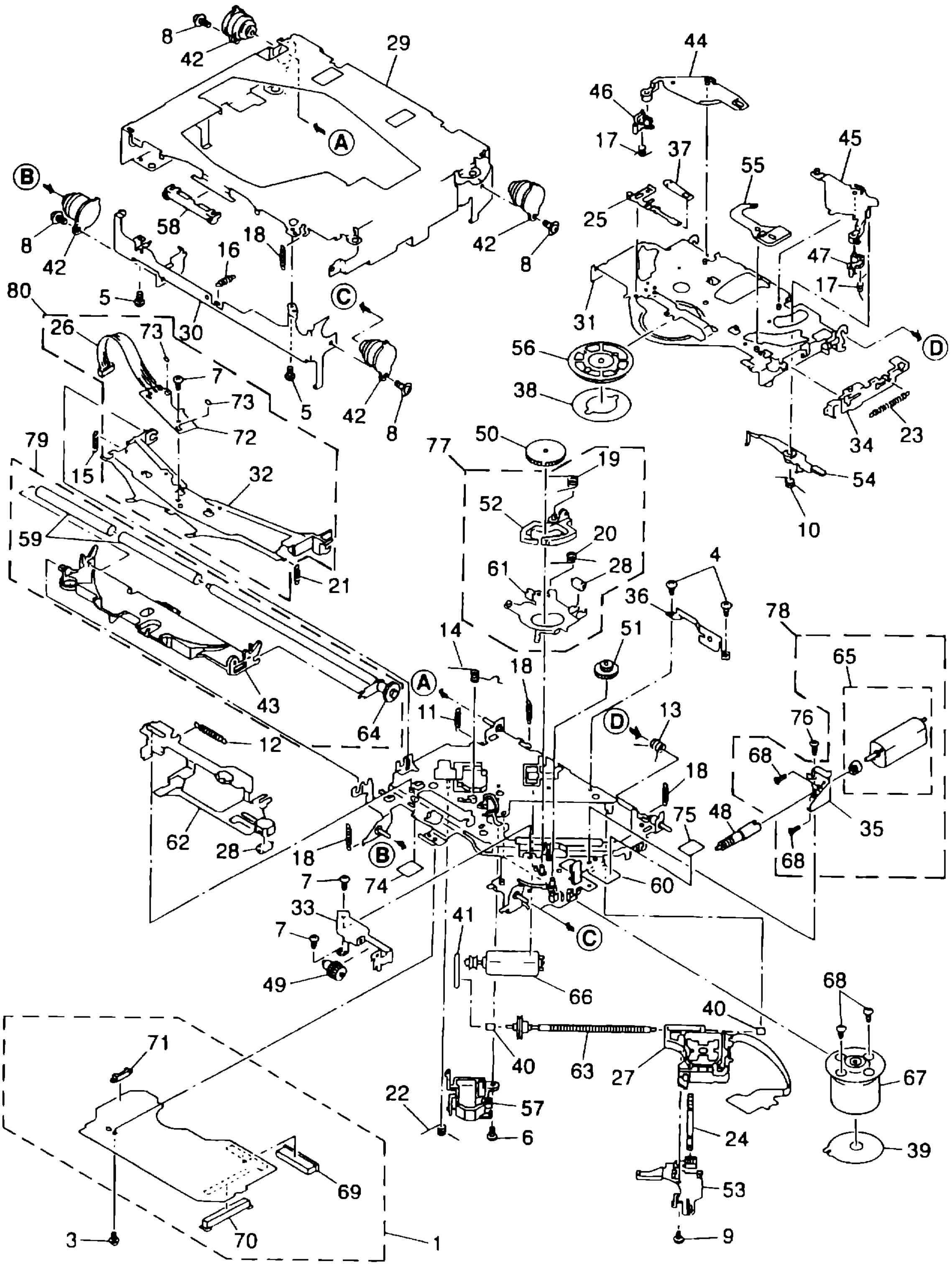
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Fig. 5

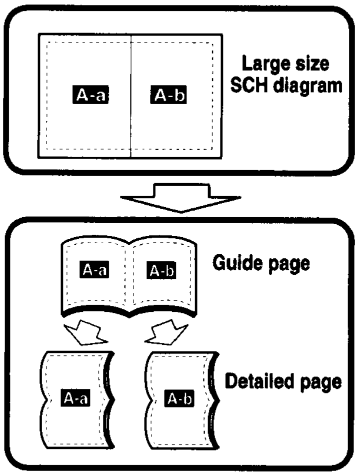
● Parts List

Mark	No.	Description	Part No.
	1	Control Unit	CWX1889
	2	•••••	
	3	Screw	IMS26P035FMC
	4	Screw	BMZ20P040FMC
	5	Screw	BSZ20P040FMC
	6	Screw(M2×3)	CBA1077
	7	Screw(M2×2)	CBA1250
	8	Screw(M2×5)	CBA1296
	9	Screw(M2×3.85)	CBA1362
	10	Spring	CBH1945
	11	Spring	CBH1724
	12	Spring	CBH1939
	13	Spring	CBH1729
	14	Spring	CBH1730
	15	Spring	CBH1731
	16	Spring	CBH1732
	17	Spring	CBH1736
	18	Spring	CBH1745
	19	Spring	CBH1832
	20	Spring	CBH1833
	21	Spring	CBH1848
	22	Spring	CBH1849
	23	Spring	CBH1863
	24	Spring	CBL1214
	25	Spring	CBL1269
	26	Connector(CN1)	CDE4576
	27	Pickup Unit(Service)	CXX1230
	28	Roller	CLA2627
	29	Frame	CNC5796
	30	Frame	CNC5797
	31	Arm	CNC5799
	32	Arm	CNC5801
	33	Bracket	CNC5871
	34	Lever	CNC6054
	35	Bracket	CNC6056
*	36	Bracket	CNC6376
	37	Spacer	CNM3315
	38	Sheet	CNM4849
	39	PCB	CNP4230
	40	Bearing	CNR1415
	41	Belt	CNT1071
	42	Damper	CNV3974
	43	Arm	CNV4120
	44	Arm	CNV4122
	45	Arm	CNV4123
	46	Arm	CNV4124
	47	Arm	CNV4125
	48	Gear	CNV4128
	49	Gear	CNV4129
	50	Gear	CNV4130
	51	Gear	CNV4131
	52	Arm	CNV4136
	53	Holder	CNV4663
	54	Arm	CNV4138
	55	Arm	CNV4139
	56	Clamper	CNV4140
	57	Holder	CNV4664
	58	Guide	CNV4484
	59	Roller	CNV4509
	60	Chassis Unit	CXA9515
	61	Arm Unit	CXA8565
	62	Lever Unit	CXA9300
	63	Screw Unit	CXA8699
	64	Gear Unit	CXA8701
	65	Load Motor Unit(M3)	CXA8702
	66	CRG Motor Unit(M2)	CXA8986
	67	Motor Unit(M1)	CXA8912
	68	Screw	JFZ20P025FMC
	69	Connector(CN101)	CKS1953
	70	Connector(CN701)	CKS2774
	71	Connector(CN801)	CKS2196
*	72	Gathering PCB	CNX2445
	73	Photo-transistor(Q1, 2)	CPT-230S-X
	74	Sheet	CNM4873
	75	Cushion	CNM3917
	76	Screw	BMZ20P025FMC
	77	ELBO Arm Assy	CXA8889
	78	Load Motor Assy	CXA8891
	79	LO Arm Assy	CXA8892
	80	Guide Arm Assy	CXA8893

3. SCHEMATIC DIAGRAM

3.1 OVERALL CONNECTION DIAGRAM(GUIDE PAGE)

Note: When ordering service parts, be sure to refer to "EXPLODED VIEWS AND PARTS LIST" or "ELECTRICAL PARTS LIST".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A-b
Large size SCH diagram
Guide page
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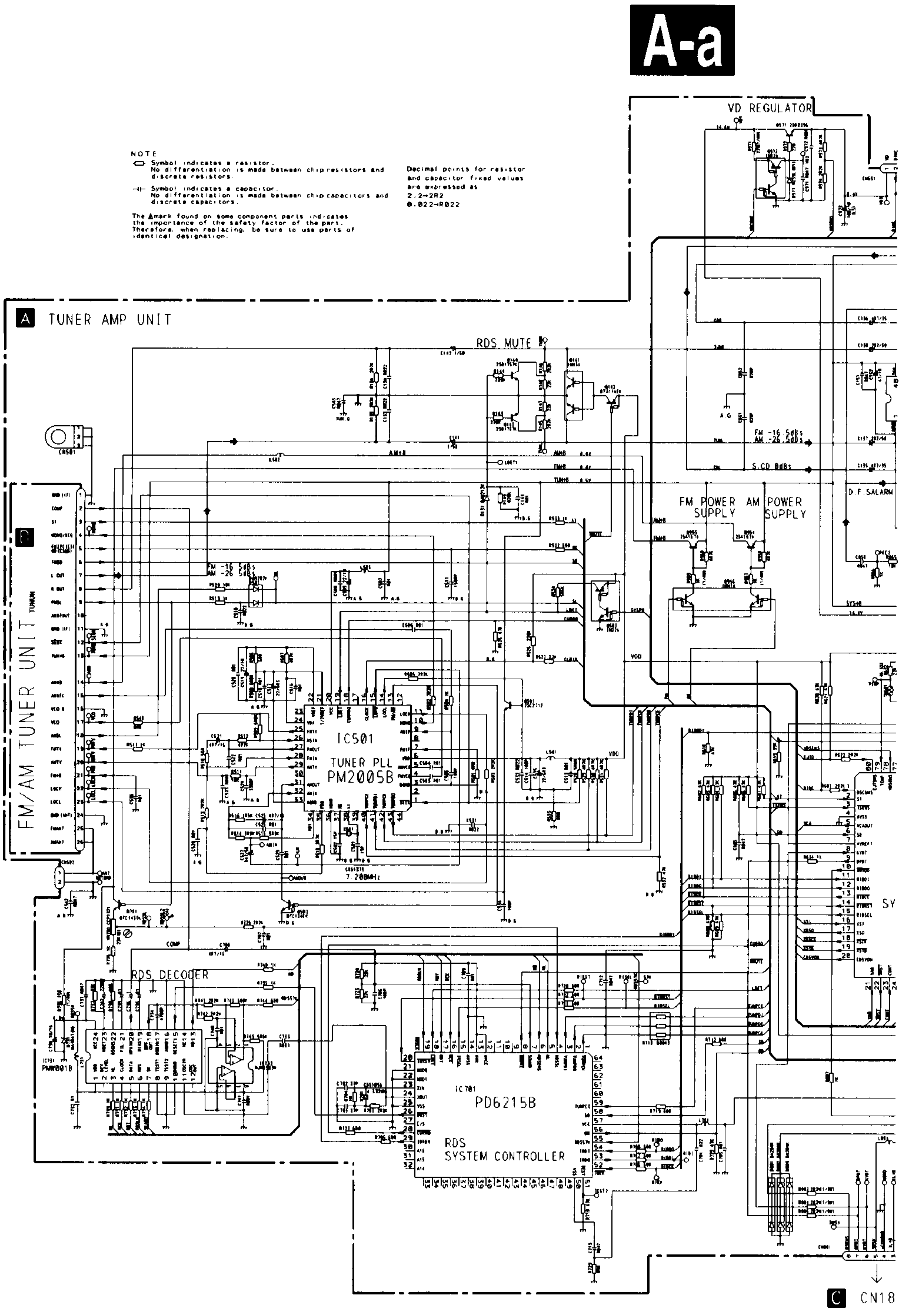
A-b
Detailed page
A-a
A-b


A-a
VD REGULATOR
A TUNER AMP UNIT
RDS MUTE
CN501
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FM/AM TUNER UNIT
FM -16.5dBs
AM -26.5dBs
S.CD 8dBs
FM POWER SUPPLY
AM POWER SUPPLY
D.F SALARM
IC501
TUNER PLL
PM2005B
7.200MHz
RDS DECODER
IC701
PD6215B
RDS SYSTEM CONTROLLER
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NOTE

Symbol indicates a resistor.
No differentiation is made between chip resistors and discrete resistors.

Symbol indicates a capacitor.
No differentiation is made between chip capacitors and discrete capacitors.

The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.

Decimal points for resistor and capacitor fixed values are expressed as
2.2→2R2
0.022→R022

A-b

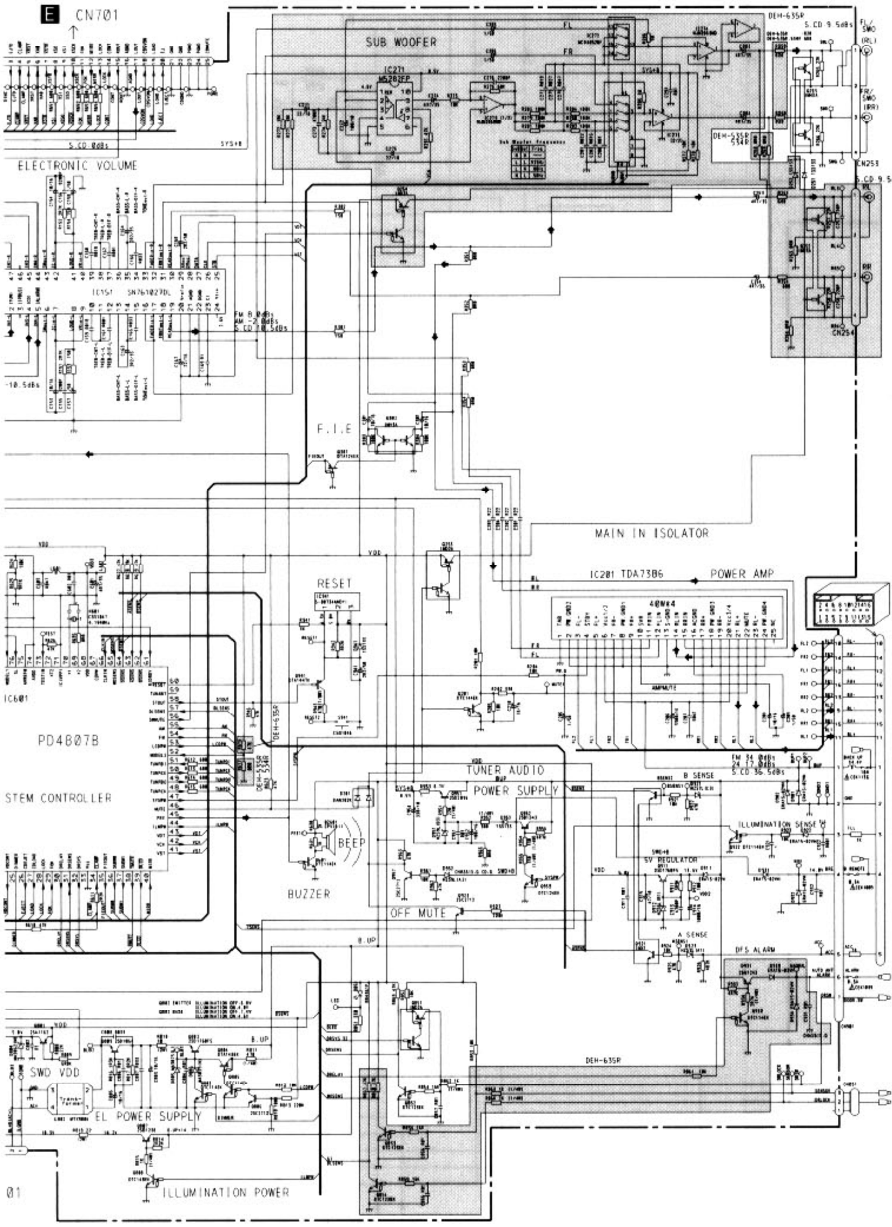

E CN701
SUB WOOFER
IC271 M5207FP
FL
FR
DEH-635R
DEH-535R
S.CD 0dBs
SYS+B
ELECTRONIC VOLUME
IC151 SN761027DL
FM 8.0dBs
AM -2.0dBs
S.CD 20.5dBs
-10.5dBs
CN253
CN254
S.CD 9.5dBs
F.I.E
MAIN IN ISOLATOR
IC201 TDA7386
POWER AMP
VDD
RESET
IC601
PD4807B
STEM CONTROLLER
BEEP
BUZZER
TUNER AUDIO
POWER SUPPLY
OFF MUTE
B.UP
B SENSE
ILLUMINATION SENSE
5V REGULATOR
A SENSE
DFS ALARM
FM 34.0dBs
AM 24.7dBs
S.CD 36.5dBs
SWD VDD
EL POWER SUPPLY
ILLUMINATION POWER
01

Fig. 6

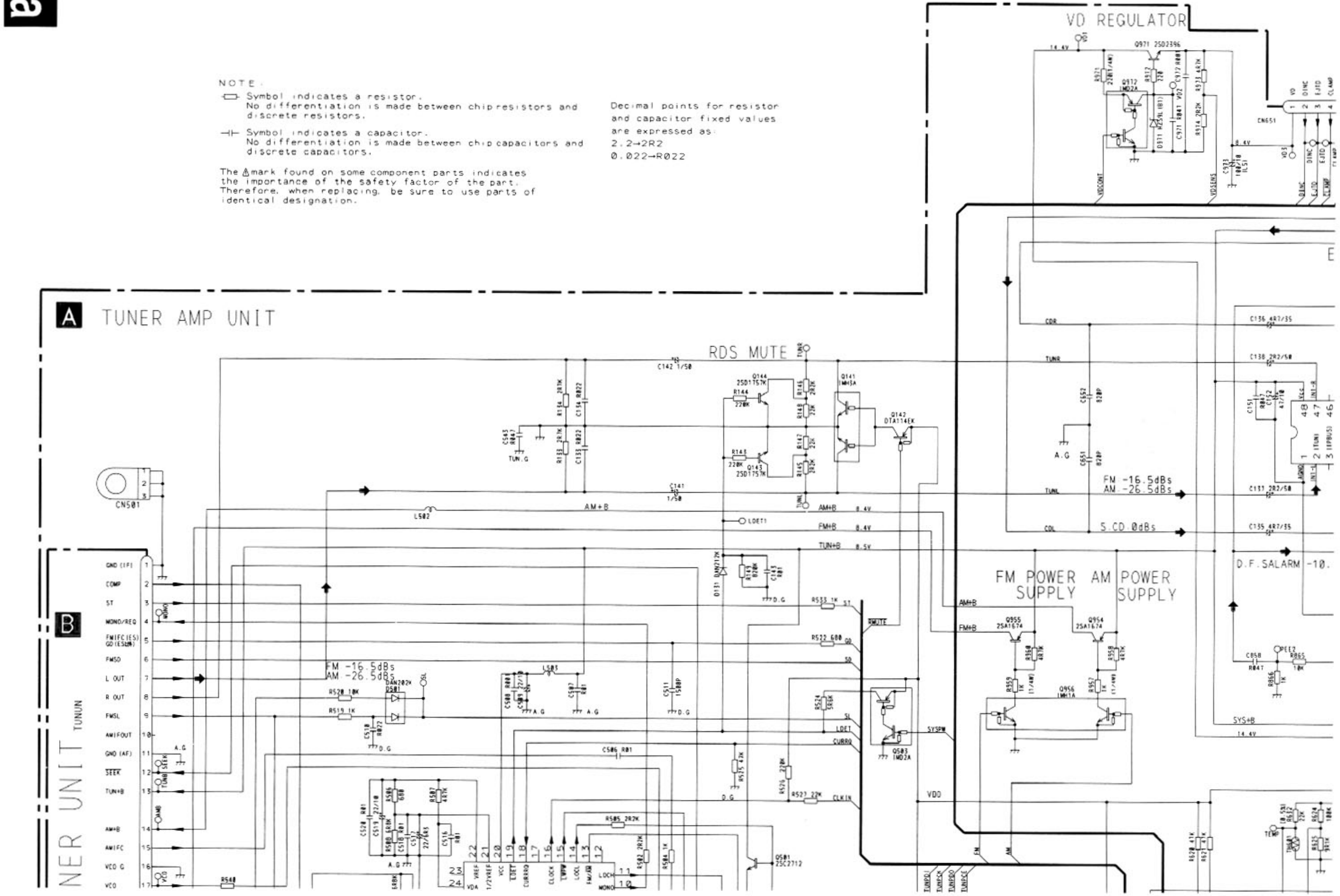
NOTE:

▭ Symbol indicates a resistor.
No differentiation is made between chip resistors and discrete resistors.

⊣⊢ Symbol indicates a capacitor.
No differentiation is made between chip capacitors and discrete capacitors.

The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.

Decimal points for resistor and capacitor fixed values are expressed as:
2.2→2R2
0.022→R022


A TUNER AMP UNIT
B TUNER UNIT TUNUN
VD REGULATOR
RDS MUTE
FM POWER SUPPLY
AM POWER SUPPLY
FM -16.5dBs
AM -26.5dBs
5 CD 0dBs
D.F.SALARM -10.
CN501
CN651
Q971 2SD2396
Q972 IMD2A
D971 HZS9L(B1)
Q141 IMH5A
Q142 DTA114EK
Q144 2SD1757K
Q143 2SD1757K
D131 DAN212K
Q955 2SA1674
Q954 2SA1674
Q956 IMH1A
Q503 IMD2A
Q501 2SC2712
D501 DAN202K
L502
L503
AM+B 8.4V
FM+B 8.4V
TUN+B 8.5V
SYS+B 14.4V
14.4V
VDD
SYSPW
RMUTE
CLKIN
GND (IF)
COMP
ST
MONO/REQ
FMIFC(ES) GD(ESUM)
FMSD
L OUT
R OUT
FMSL
AMIFOUT
GND (AF)
SEEK
TUN+B
AM+B
AMIFC
VCO G
VCO
TUNPDI
TUNPCK
TUNPDO
TUNPCE
FM
AM
CDR
TUNR
TUNL
CDL
A.G
D.G
TUN.G
LDET1
VD
DINC
EJTD
CLAMP
VDSENS
VDCONT
TEMP
TH601

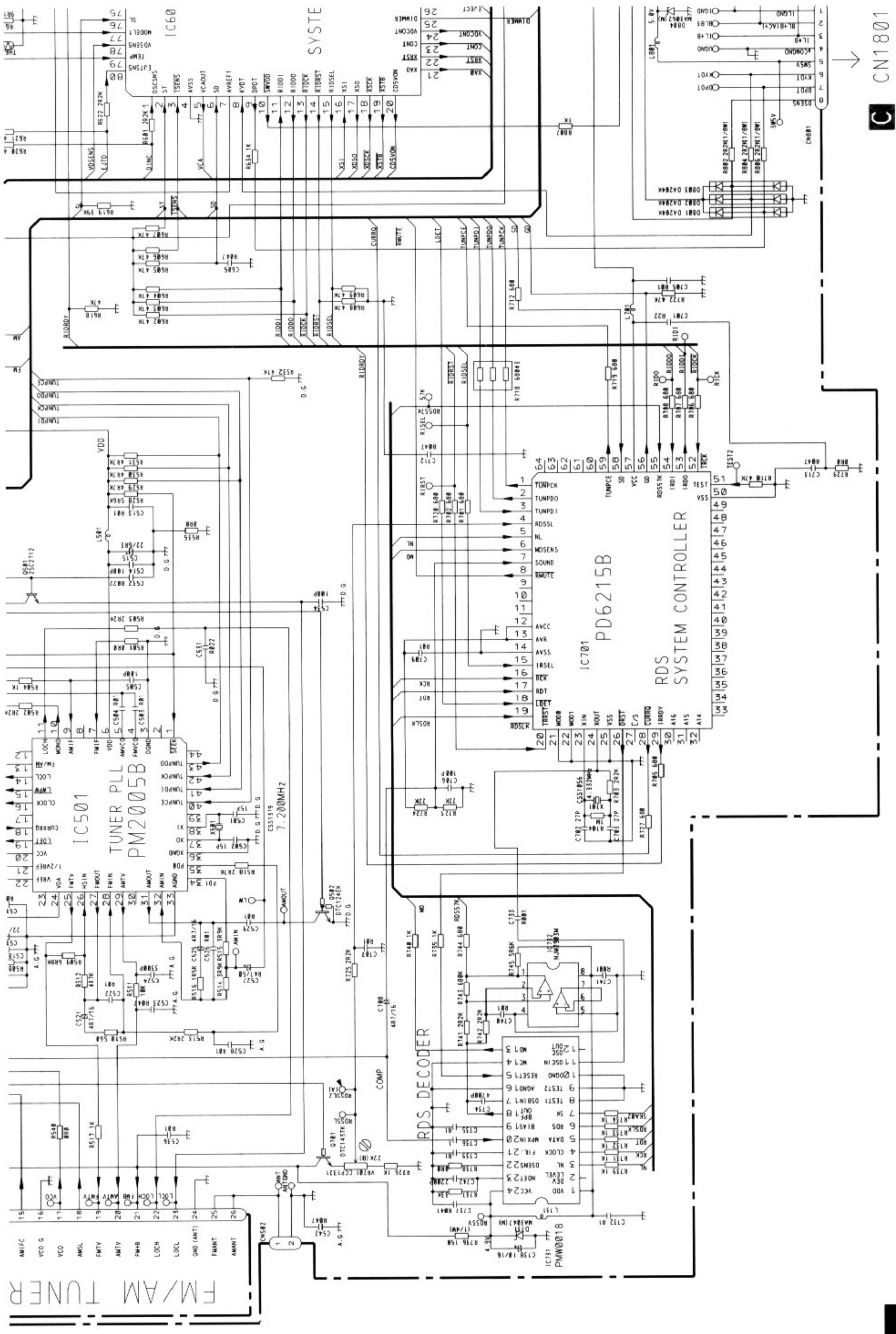
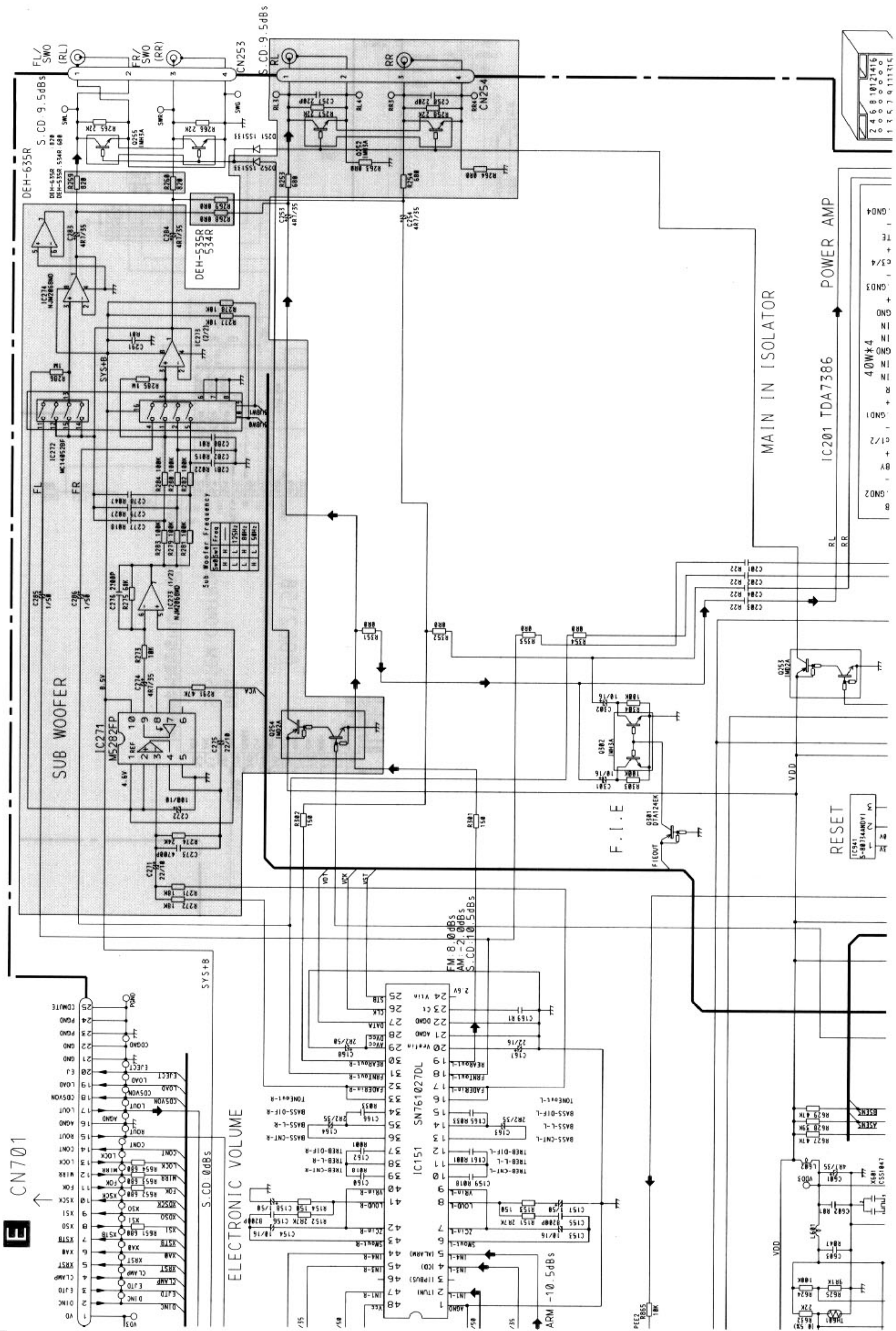

IC501
TUNER PLL
PM2005B
IC701
PD6215B
RDS
SYSTEM CONTROLLER
RDS DECODER
IC731
PMW0018
IC732
NJM4558M
IC601
SYSTE
CN1801
CN501
FM/AM TUNER
X501 CSS1319 7.200MHz
X701 CSS1056 4.332MHz
C

Fig. 7


SUB WOOFER
IC271 M5282FP
IC272 MC14052BF
IC274 NJM2068MD
IC273 NJM2068MD
Sub Woofer Frequency
ELECTRONIC VOLUME
IC151 SN761027DL
MAIN IN ISOLATOR
POWER AMP
IC201 TDA7386
40W*4
RESET
F.I.E
CN701
CN253
CN254
FL/SWO (RL)
FR/SWO (RR)
RL
RR
S.CD 9.5dBs
S.CD 0dBs
FM:8.0dBs
AM:-2.0dBs
S.CD:10.5dBs
ARM -10.5dBs
SYS+B
DEH-635R
DEH-535R 534R
Q254 IMD2A
Q253 IMD2A
Q302 IMH3A
Q301 DTA124EK
VDD
E

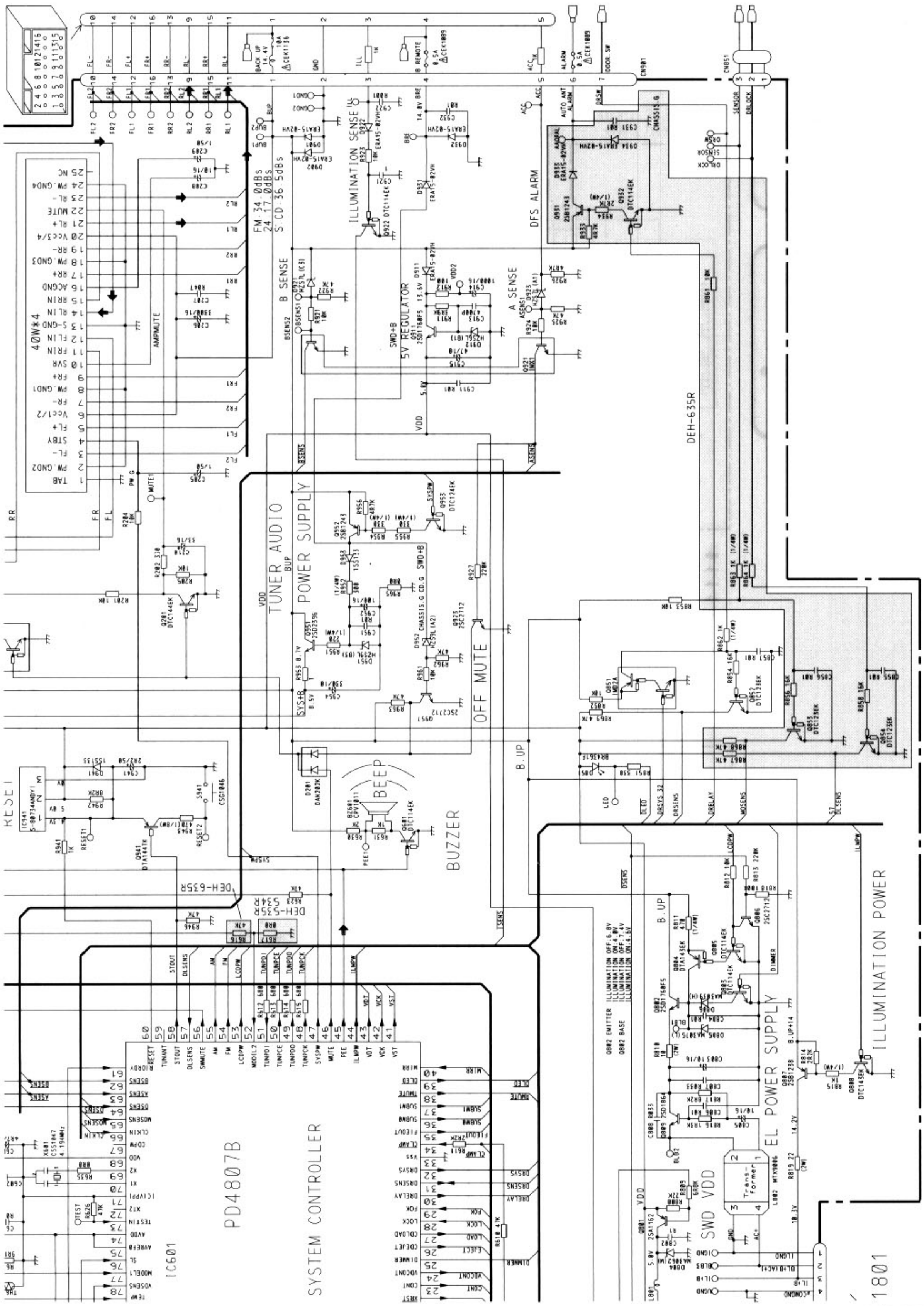
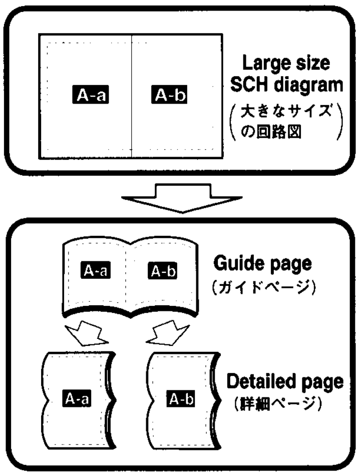
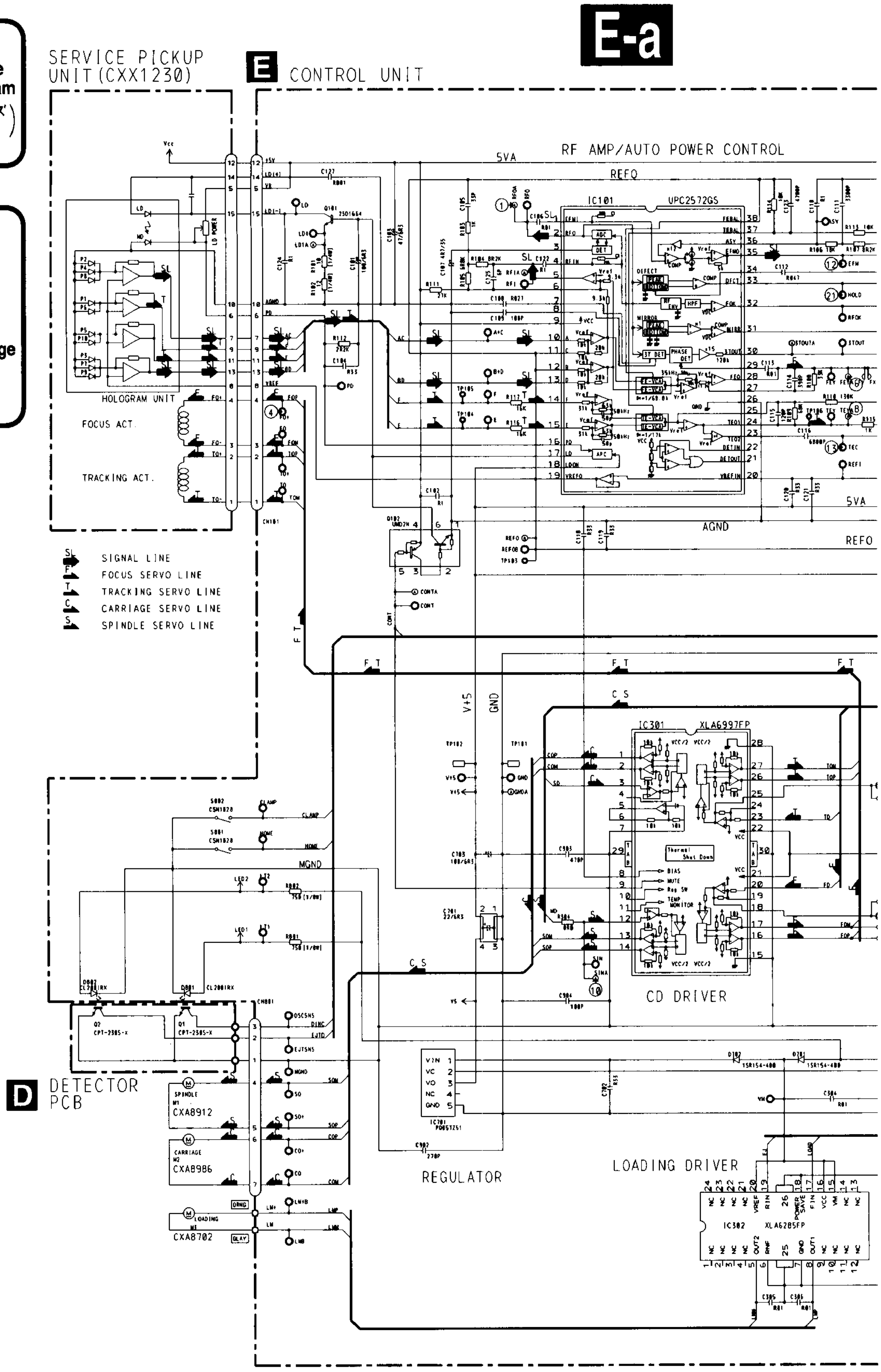

40W×4
FM:34.0dBs
24:17.0dBs
S:CD:36.5dBs
ILLUMINATION SENSE
DFS ALARM
B SENSE
A SENSE
5V REGULATOR
SWD+B
TUNER AUDIO POWER SUPPLY
OFF MUTE
BUZZER
BEEP
RESET
DEH-635R
DEH-535R 534R
PD4807B
SYSTEM CONTROLLER
IC601
EL POWER SUPPLY
ILLUMINATION POWER
SWD VDD
Trans-former
1801

Fig. 8

3.2 CD MECHANISM MODULE(GUIDE PAGE)


A-a
A-b
Large size SCH diagram
（大きなサイズの回路図）
Guide page
（ガイドページ）
Detailed page
（詳細ページ）


E-a
SERVICE PICKUP UNIT(CXX1230)
E CONTROL UNIT
RF AMP/AUTO POWER CONTROL
5VA
REFO
IC101 UPC2572GS
HOLOGRAM UNIT
FOCUS ACT.
TRACKING ACT.
CN101
SL SIGNAL LINE
F FOCUS SERVO LINE
T TRACKING SERVO LINE
C CARRIAGE SERVO LINE
S SPINDLE SERVO LINE
AGND
F T
C S
V+5
GND
IC301 XLA6997FP
CD DRIVER
MGND
D DETECTOR PCB
SPINDLE M1 CXA8912
CARRIAGE M2 CXA8986
LOADING M3 CXA8702
REGULATOR
IC701 PQ05TZ51
LOADING DRIVER
IC302 XLA6285FP

E-b

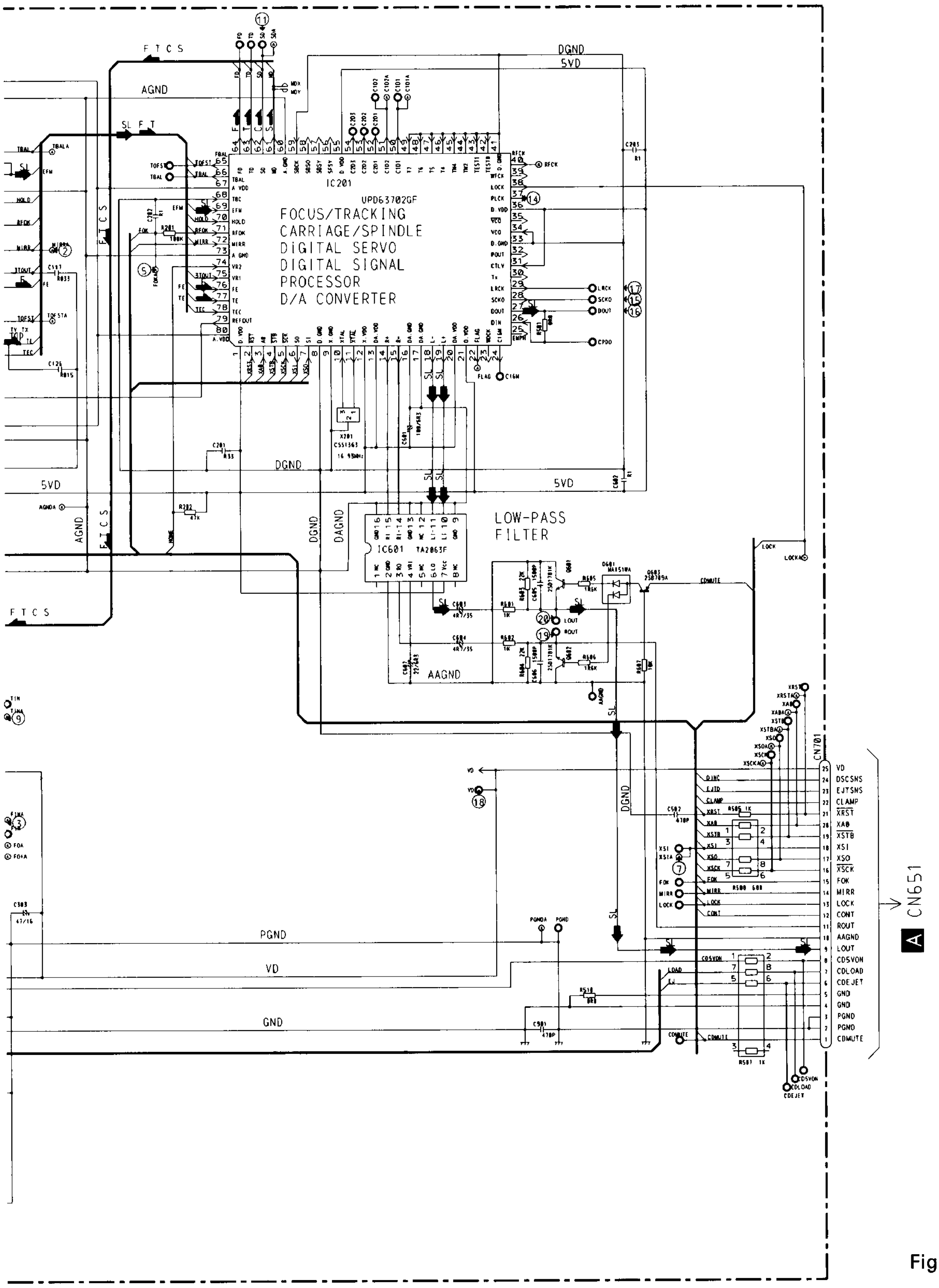
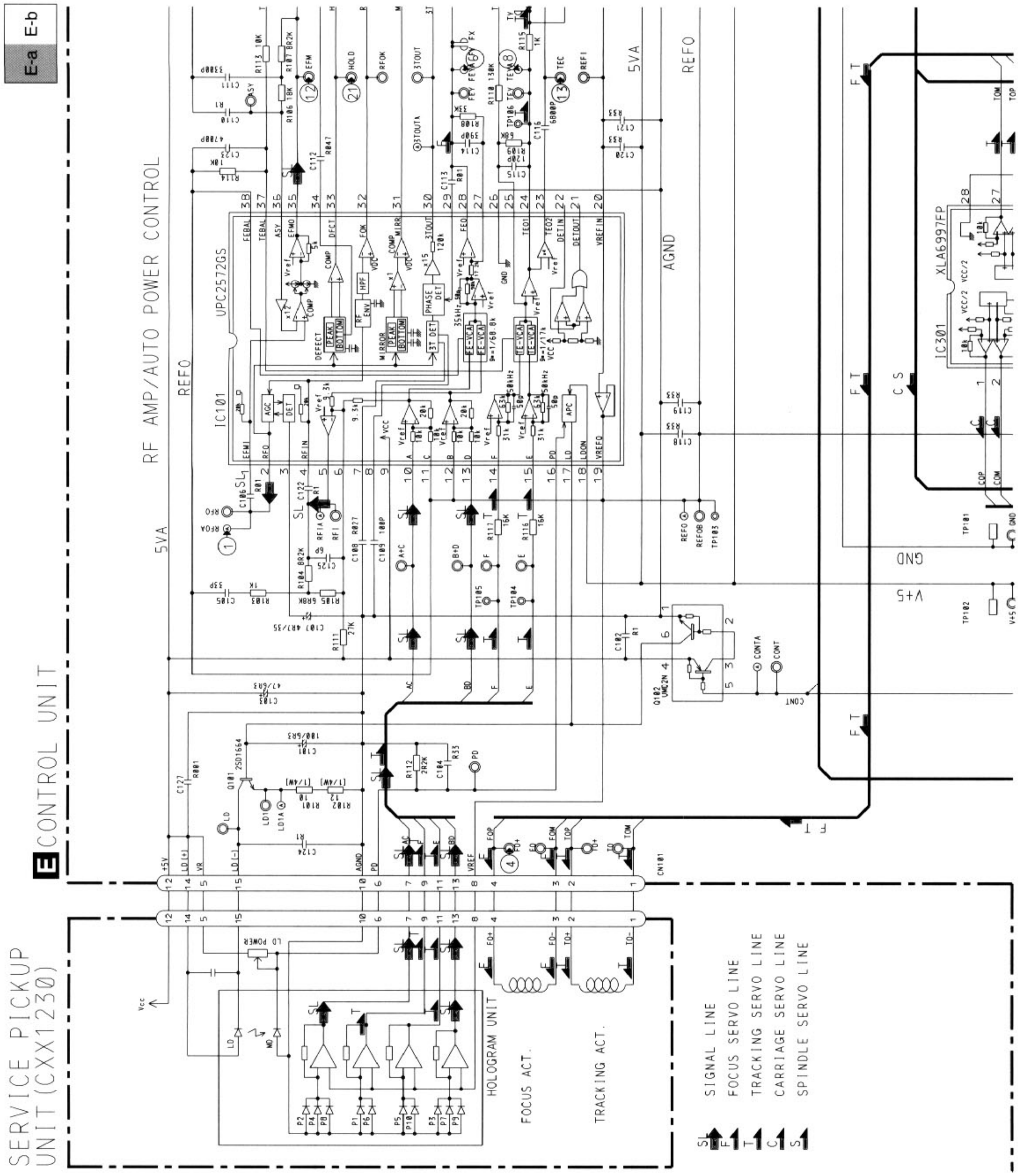
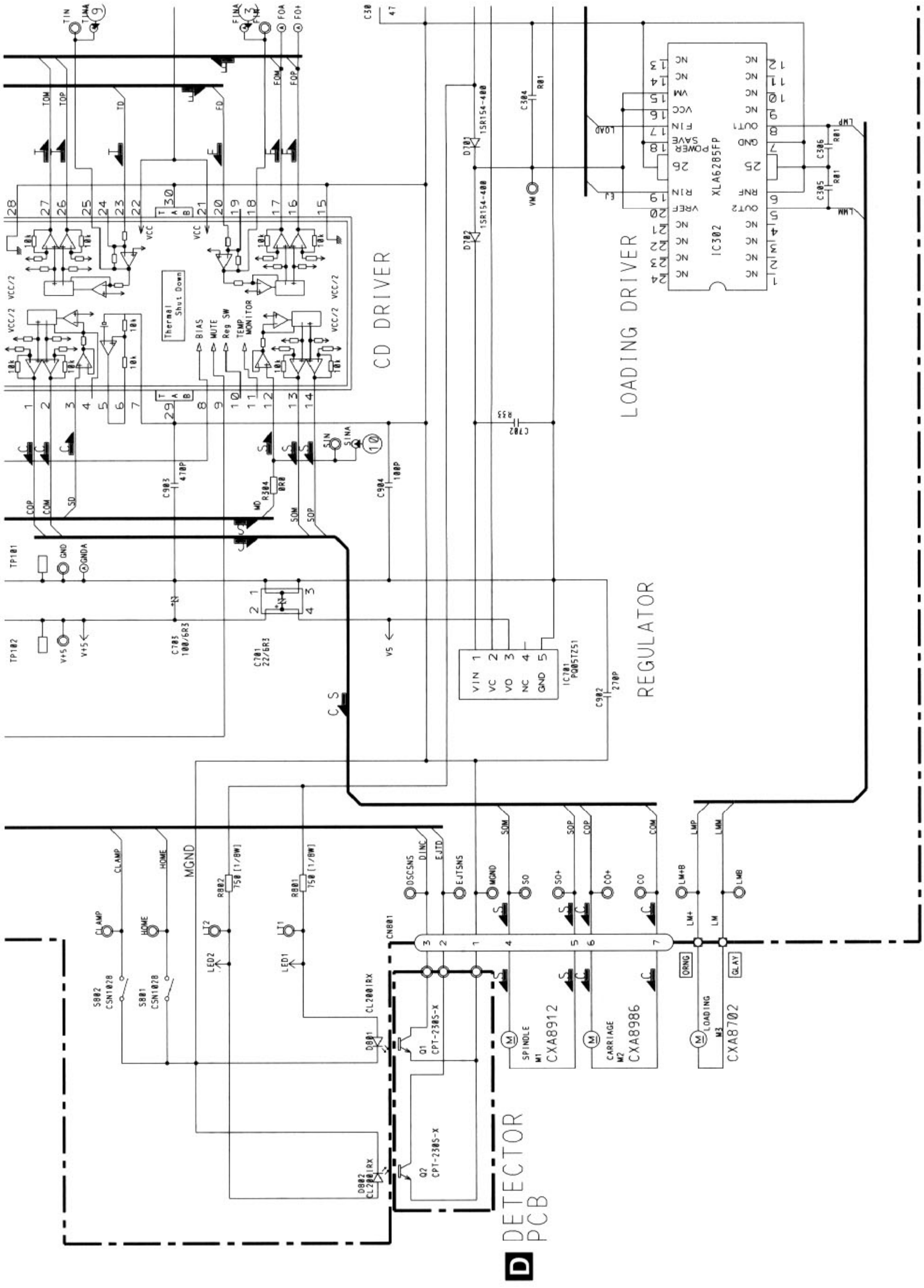

IC201
UPD63702GF
FOCUS/TRACKING
CARRIAGE/SPINDLE
DIGITAL SERVO
DIGITAL SIGNAL
PROCESSOR
D/A CONVERTER
IC601 TA2063F
LOW-PASS
FILTER
AGND
DGND
5VD
DAGND
AAGND
PGND
VD
GND
FTCS
SL F T
X201
CSS1363
16.93MHz
CN701
CN651
A
VD
DSCSNS
EJTSNS
CLAMP
XRST
XAB
XSTB
XSI
XSO
XSCK
FOK
MIRR
LOCK
CONT
ROUT
AAGND
LOUT
CDSVON
CDLOAD
CDEJET
GND
GND
PGND
PGND
CDMUTE
LRCK
SCKO
DOUT
CPDO
RFCK
LOCK
FLAG
LOUT
ROUT
COMUTE
CDSVON
CDLOAD
CDEJET

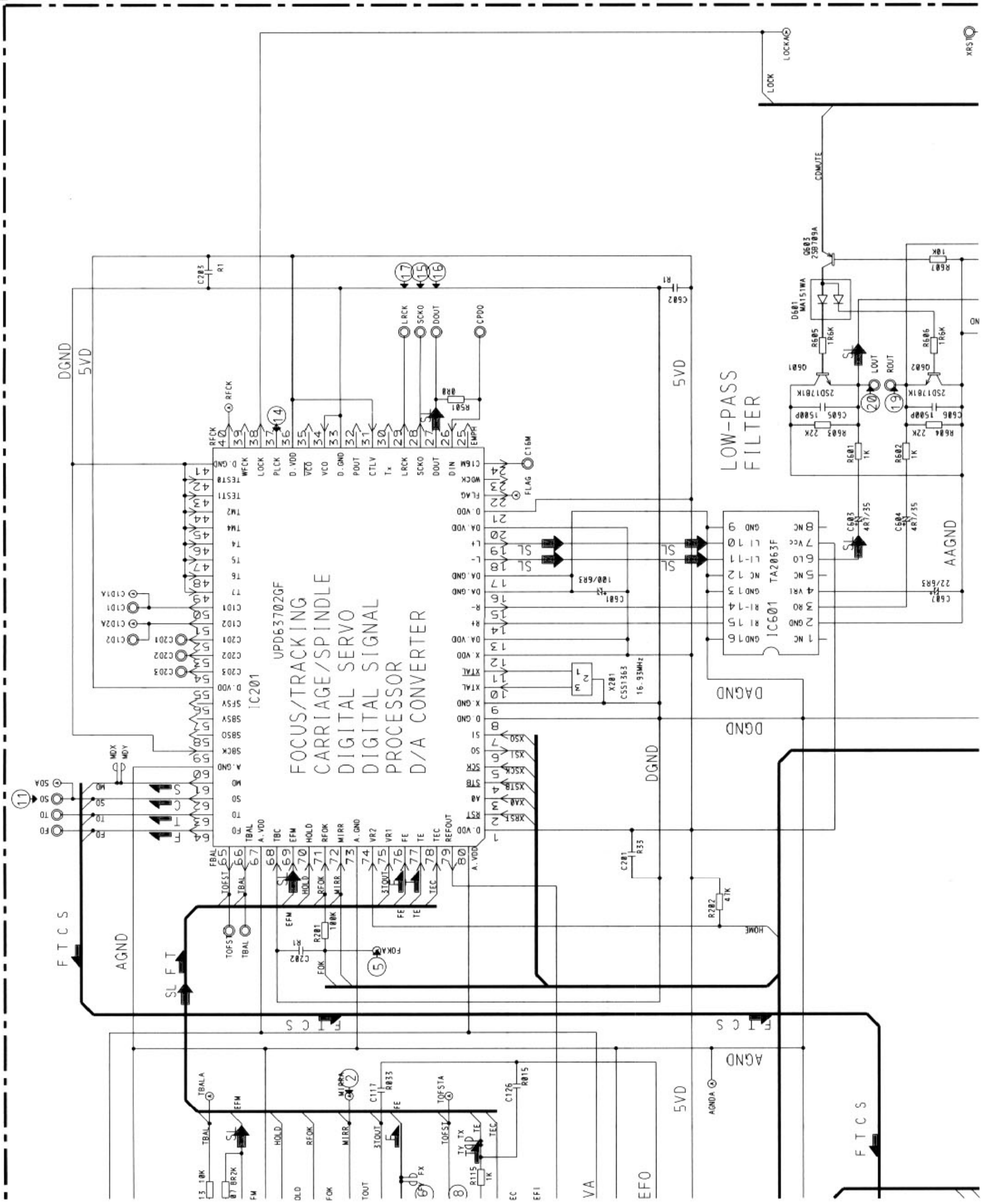
Fig. 9


SERVICE PICKUP UNIT (CXX1230)
E CONTROL UNIT
RF AMP/AUTO POWER CONTROL
IC101
UPC2572GS
IC301
XLA6997FP
Q101 2SD1664
Q102 UMD2N
CN101
HOLOGRAM UNIT
FOCUS ACT.
TRACKING ACT.
LD POWER
LD
MD
Vcc
5VA
REFO
AGND
GND
V+5
FT
CS
CONT
DEFECT
MIRROR
PEAK
BOTTOM
AGC
DET
APC
PHASE DET
3T DET
FE-VCA
TE-VCA
RFO
RFOA
RFI
RFIA
EFM
HOLD
RFOK
3TOUT
FEY
FEX
TEY
TEX
TEC
REFI
PD
LD
A+C
B+D
F
E
TP101
TP102
TP103
TP104
TP105
TP106
SIGNAL LINE
FOCUS SERVO LINE
TRACKING SERVO LINE
CARRIAGE SERVO LINE
SPINDLE SERVO LINE
SL
F
T
C
S


CD DRIVER
LOADING DRIVER
REGULATOR
DETECTOR PCB
D
IC302
XLA6285FP
IC701
PQ05TZ51
Thermal Shut Down
BIAS
MUTE
Reg SW
TEMP MONITOR
VCC/2
VCC
VIN
VC
VO
NC
GND
NC
VM
FIN
POWER SAVE
RIN
VREF
OUT1
OUT2
RNF
TIN
TINA
FINA
FIN
FOA
FO+
SIN
SINA
TOM
TOP
TD
FD
FOM
FOP
COP
COM
SD
MD
SOM
SOP
LOAD
LMP
LMM
VM
CS
TP101
TP102
GND
GNDA
V+5
V5
C705
100/6R3
C701
22/6R3
C903
470P
C904
100P
C902
270P
R304
0R0
C30
47
C304
R01
D701
D702
1SR154-400
C305
C306
R01
C702
R55
CN801
DSCSNS
DINC
EJTD
EJTSNS
MGND
SO
SO+
CO+
CO
LM+B
LMB
LM+
LM
ORNG
GLAY
CLAMP
HOME
S802
CSN1028
S801
CSN1028
LED1
LED2
R801
750 [1/8W]
R802
750 [1/8W]
D801
CL200IRX
D802
CL200IRX
Q1
CPT-230S-X
Q2
CPT-230S-X
SPINDLE
M1
CXA8912
CARRIAGE
M2
CXA8986
LOADING
M3
CXA8702

SWITCHES:
CONTROL UNIT
S801:HOME SWITCH··········ON-OFF
S802 CLAMP SWITCH··········ON-OFF
The underlined indicates the switch position.

Fig. 10


IC201
UPD63702GF
FOCUS/TRACKING
CARRIAGE/SPINDLE
DIGITAL SERVO
DIGITAL SIGNAL
PROCESSOR
D/A CONVERTER
IC601
TA2063F
LOW-PASS
FILTER
X201
CSS1363
16.93MHz
Q601
2SD1781K
Q602
2SD1781K
Q603
2SB709A
D601
MA151WA
R601 1K
R602 1K
R603 22K
R604 22K
R605 1R6K
R606 1R6K
R607 10K
C605 1500P
C606 1500P
C603 4R7/35
C604 4R7/35
C601 100/6R3
C607 22/6R3
C201
R33
R202 47K
R201 100K
C202
C203
R1
C602
R501
0R0
DGND
5VD
AGND
DAGND
AAGND
LOCK
LOCKA
XRST
COMUTE
LRCK
SCKO
DOUT
CPDO
RFCK
C16M
FLAG
LOUT
ROUT
HOME
FOKA
FOK
TOFS
TBAL
TBALA
EFM
HOLD
RFOK
MIRR
3TOUT
FE
TE
TEC
TOFSTA
AGNDA
MDX
MDY
SOA
SO
TO
FO
C1D1A
C1D1
C1D2A
C1D2
C2O1
C2O2
C2O3
F T C S
SL F T
SL
VA
EFO
ON

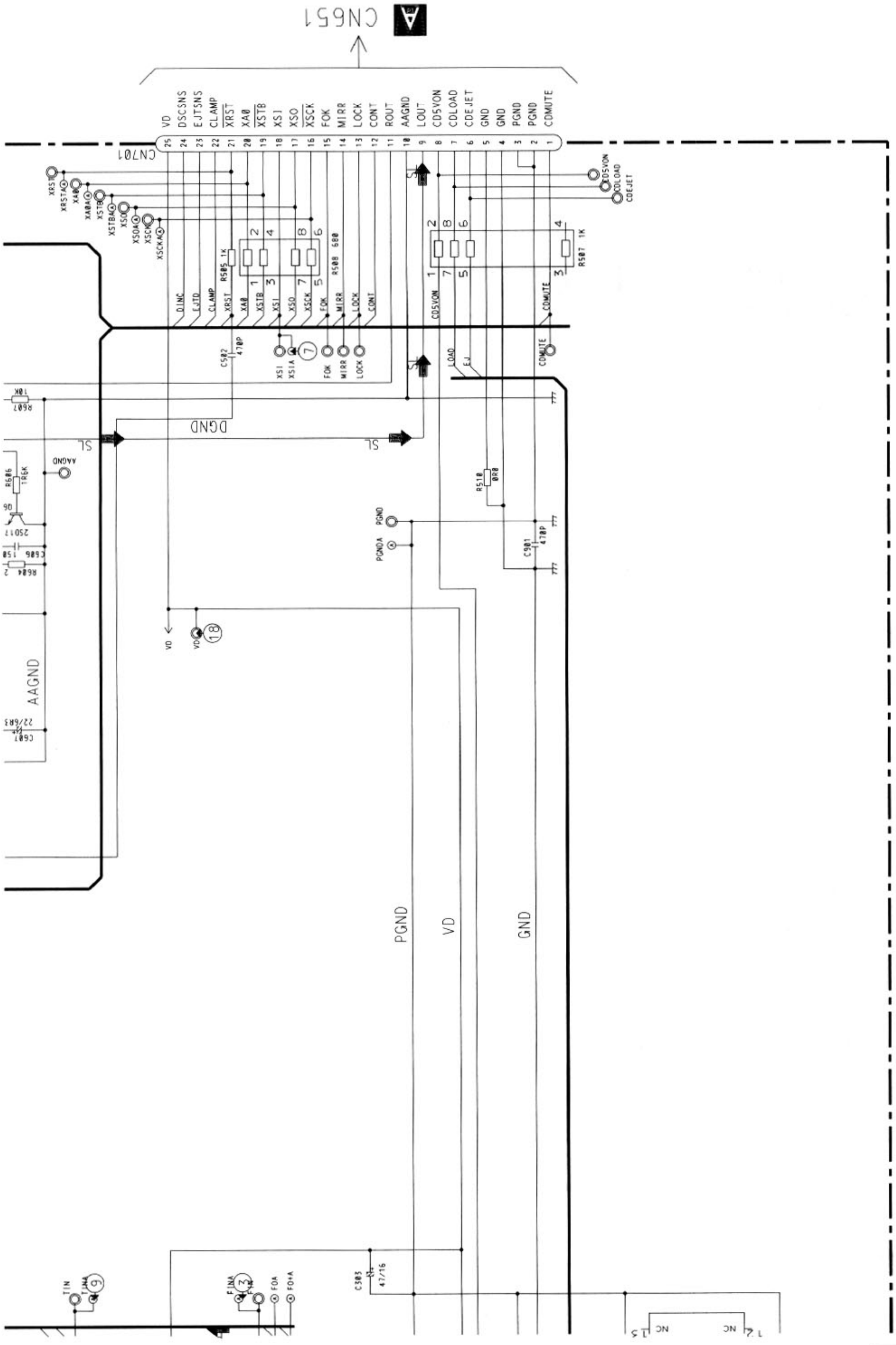
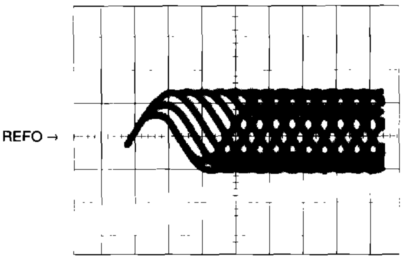

A
CN651
CN701
VD
DSCSNS
EJTSNS
CLAMP
XRST
XA0
XSTB
XSI
XSO
XSCK
FOK
MIRR
LOCK
CONT
ROUT
AAGND
LOUT
CD5VON
CDLOAD
CDEJET
GND
GND
PGND
PGND
COMUTE
XRST
XRSTA
XA0
XA0A
XSTB
XSTBA
XSO
XSOA
XSCK
XSCKA
CD5VON
CDLOAD
CDEJET
R505 1K
R508 680
R507 1K
DINC
EJTD
CLAMP
XRST
XA0
XSTB
XSI
XSO
XSCK
FOK
MIRR
LOCK
CONT
CD5VON
COMUTE
C502 470P
XSI
XSIA
7
FOK
MIRR
LOCK
COMUTE
LOAD
EJ
R607 10K
DGND
SL
SL
SL
SL
AAGND
R606 1R6K
Q6
2SD117
C606 150
R604 2
R510 0R0
PGND
PGNDA
C901 470P
VD
VD
18
AAGND
C607 22/6R3
PGND
VD
GND
C303 47/16
TIN
TINA
9
FINA
3
FOA
FO+A
NC
NC
13
12

Fig. 11

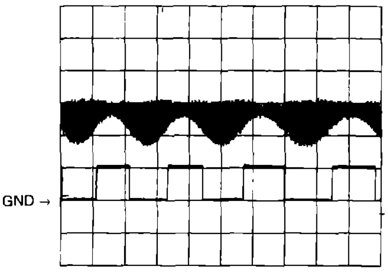
Note:1. The encircled numbers denote measuring pointes in the circuit diagram.
2. Reference voltage
REFO:2.5V

● Waveforms

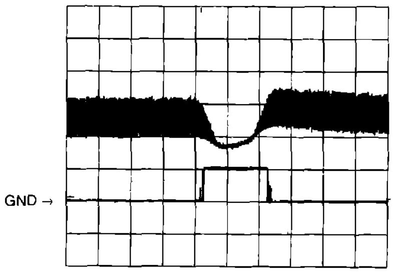
① RFO 0.5V/div. 0.5μs/div.
Normal mode: play



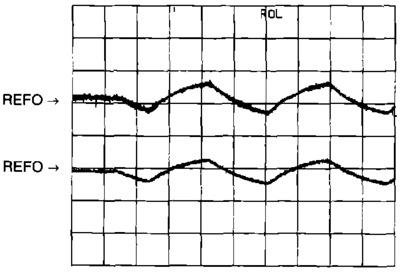
① CH1: RFO 1V/div. 0.5ms/div.
② CH2: MIRR 5V/div.
Test mode: Tracking open



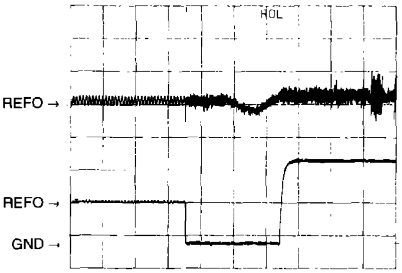
① CH1: RFO 1V/div. 0.5ms/div.
② CH2: MIRR 5V/div.
Nomal mode: The defect part passes 800μm



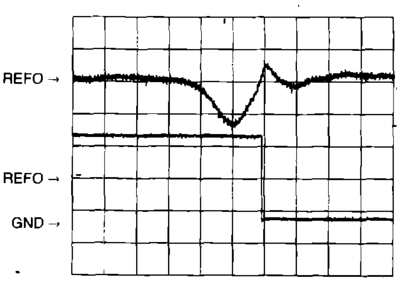
③ CH1: FIN 0.5V/div. 0.2s/div.
④ CH2: FO+ 2V/div.
Test mode: No disc, Focus close



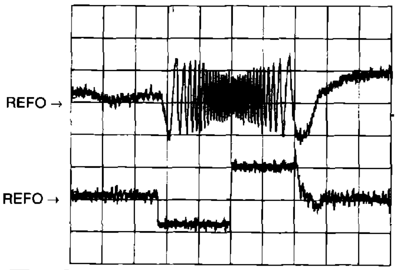
③ CH1: FIN 0.5V/div. 0.2s/div.
⑤ CH2: FOK 2V/div.
Normal mode: Focus close



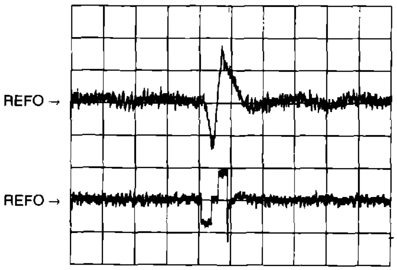
⑥ CH1: FEY 0.5V/div. 1ms/div.
⑦ CH2: XSI 2V/div.
Normal mode: Focus close



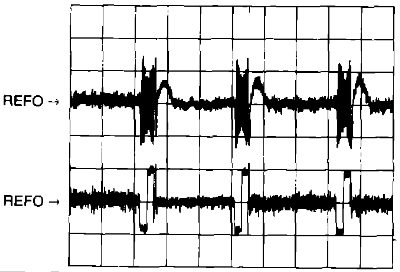
⑧ CH1: TEY 0.5V/div. 0.5ms/div.
⑨ CH2: TIN 0.5V/div.
Test mode: 32 tracks jump (FWD)



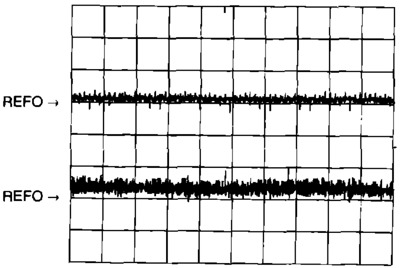
⑧ CH1: TEY 0.5V/div. 0.5ms/div.
⑨ CH2: TIN 0.5V/div.
Test mode: Single jump (FWD)



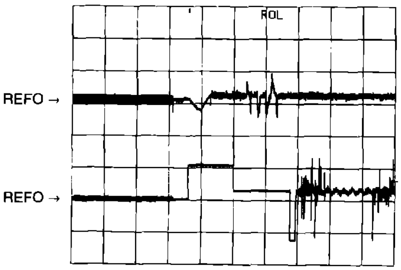
⑧ CH1: TEY 0.5V/div. 5ms/div.
⑨ CH2: TIN 0.5V/div.
Test mode: 100 tracks jump (FWD)



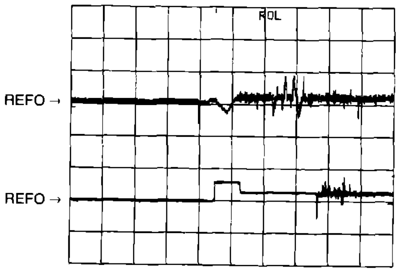
⑥ CH1: FEY 0.1V/div. 20ms/div.
③ CH2: FIN 0.2V/div.
Normal mode: Play



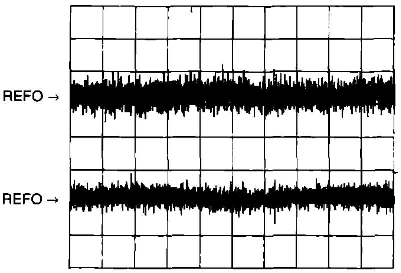
③ CH1: FIN 0.5V/div. 0.5s/div.
⑩ CH2: SIN 1V/div.
Normal mode: Focus close (12cm)



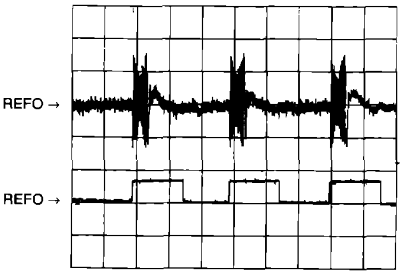
③ CH1: FIN 0.5V/div. 0.5s/div.
⑩ CH2: SIN 1V/div.
Normal mode: Focus close (8cm)



⑧ CH1: TEY 0.2V/div.
⑨ CH2: TIN 0.2V/div. 20ms/div.
Normal mode: play

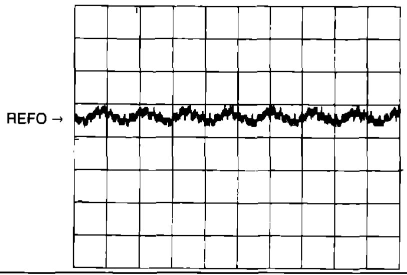


⑧ CH1: TEY 0.5V/div.
⑪ CH2: SD 0.5V/div. 5ms/div.



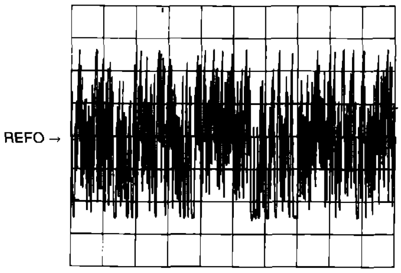
⑩ SIN 0.5V/div. 0.1s/div.

Normal mode: Play (12cm)



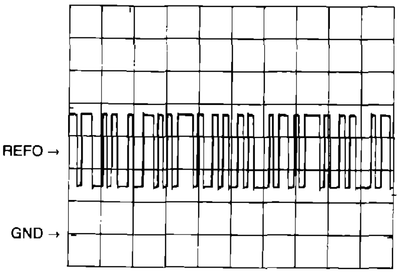
⑩ SIN 0.5V/div. 10ms/div.

Long Search (12cm)

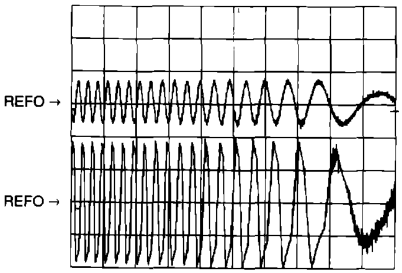


⑫ EFM 1V/div. 5μs/div.

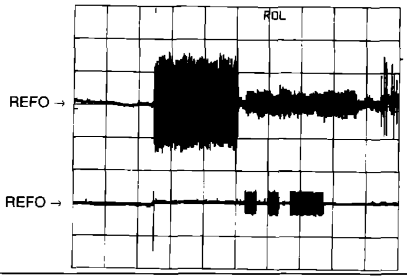
Play



⑧ CH1: TEY 1V/div.
⑬ CH2: TEC 1V/div. 2ms/div.
Test mode: Focus close
Tracking open

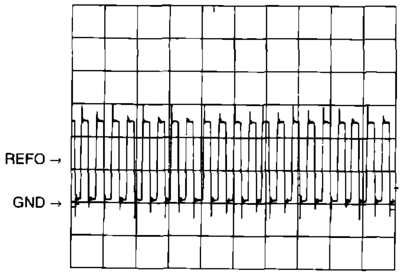


⑧ CH1: TEY 0.5V/div.
⑥ CH2: FEY 0.5V/div. 0.2s/div.
Normal mode: AGC after focus close



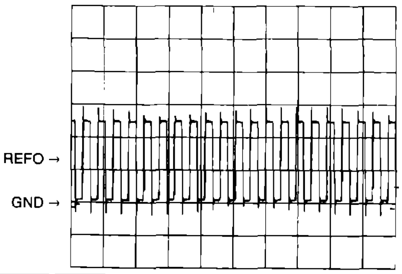
⑭ PLCK 2V/div. 0.5μs/div.

Play



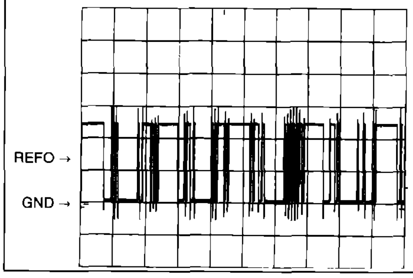
⑮ SCKO 2V/div. 1μs/div.

Play

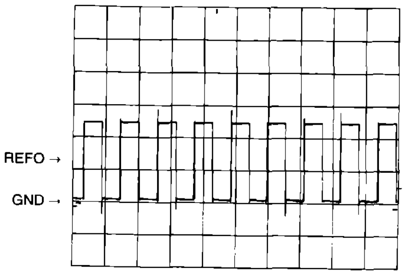


⑯ Dout 2V/div. 10μs/div.

Play

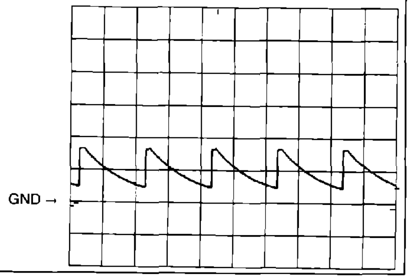


⑰ LRCK 2V/div. 20μs/div.

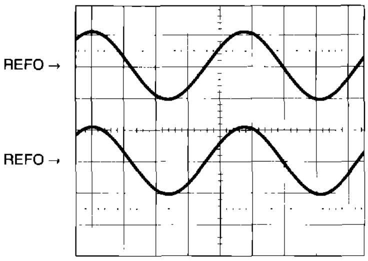


⑱ VD 5V/div. 50ms/div.

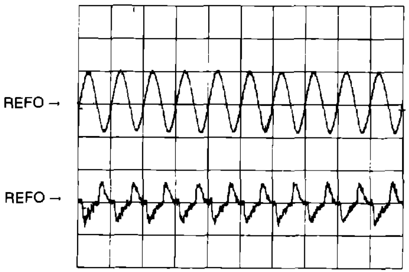
Normal mode: No disc



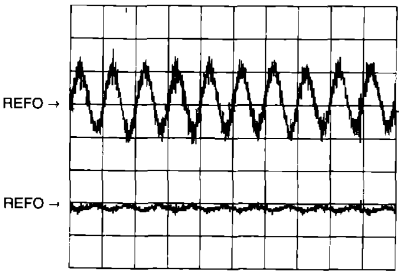
⑲ CH1: R OUT 1V/div. 0.2ms/div.
⑳ CH2: L OUT 1V/div.
Normal mode: Play (1kHz 0dB)



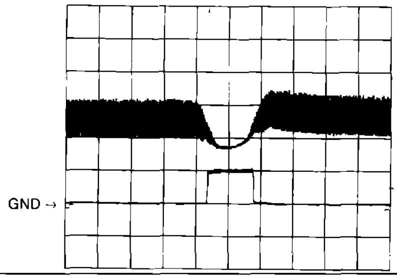
⑥ CH1: FEY 0.2V/div. 1ms/div.
③ CH2: FIN 0.5V/div.
Normal mode: During AGC



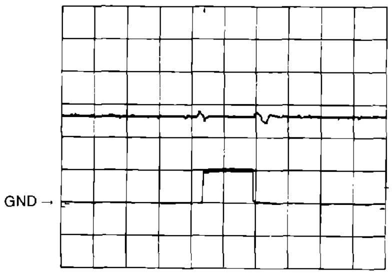
⑧ CH1: TEY 0.2V/div. 1ms/div.
⑨ CH2: TIN 0.5V/div.
Normal mode: During AGC



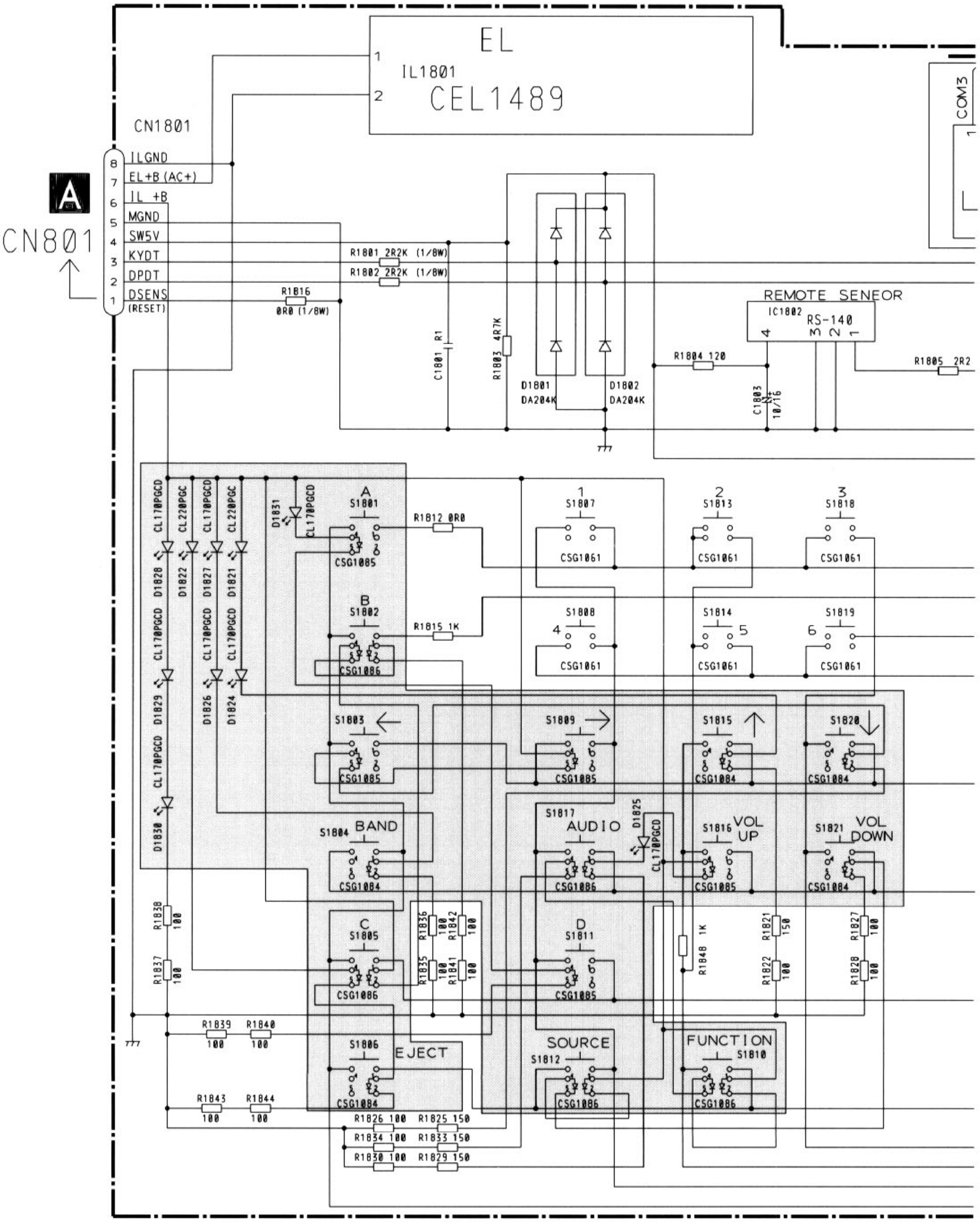
① CH1: RFO 1V/div. 0.5ms/div.
㉑ CH2: HOLD 5V/div.
Normal mode: The defect part passes 800μm



③ CH1: FIN 1V/div. 0.5ms/div.
㉑ CH2: HOLD 5V/div.
Normal mode: The defect part passes 800μm

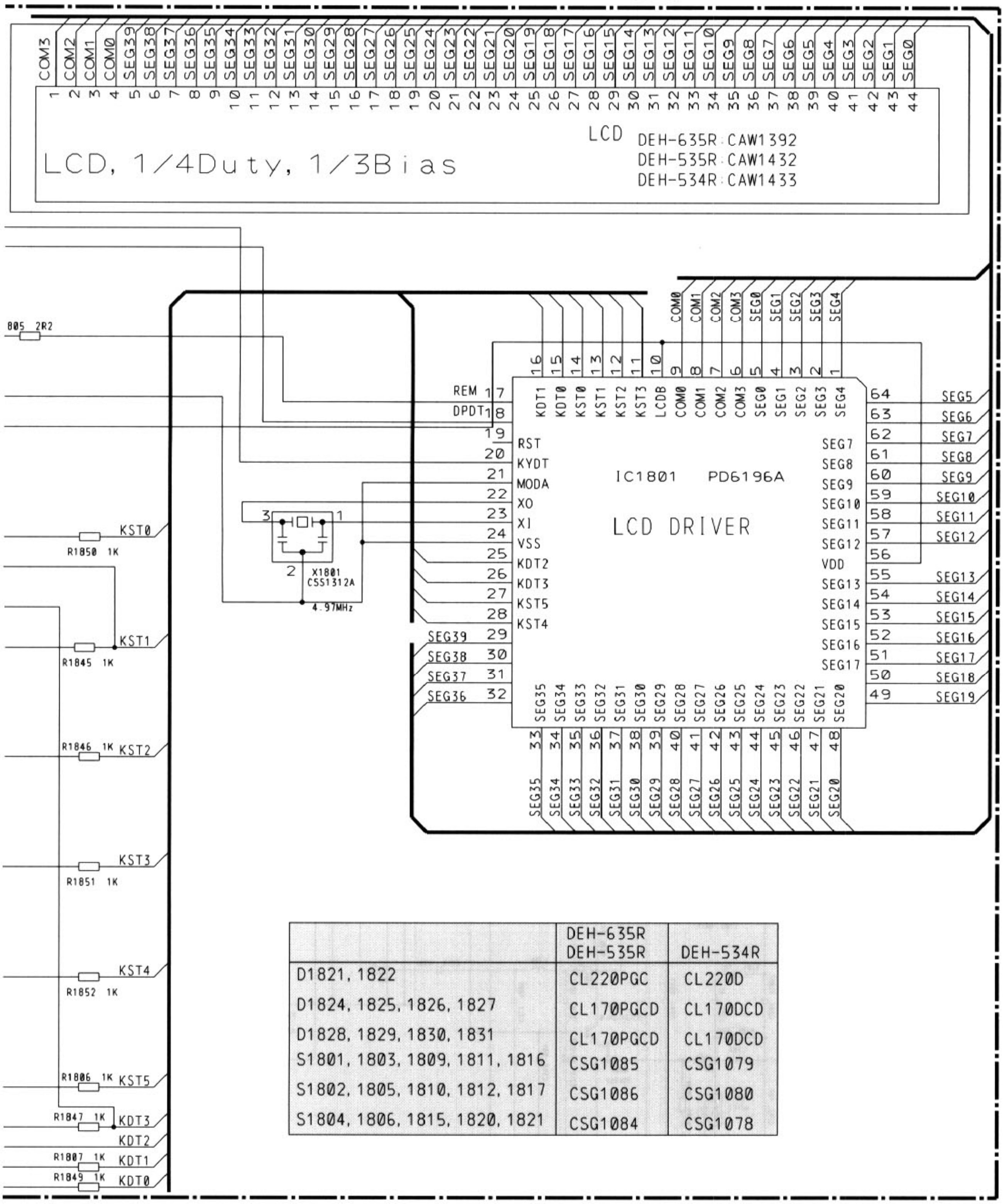


3.3 KEYBOARD UNIT


EL
IL1801
CEL1489
1
2
CN1801
8 ILGND
7 EL+B (AC+)
6 IL +B
5 MGND
4 SW5V
3 KYDT
2 DPDT
1 DSENS (RESET)
A
CN801
R1801 2R2K (1/8W)
R1802 2R2K (1/8W)
R1816 0R0 (1/8W)
C1801 R1
R1803 4R7K
D1801 DA204K
D1802 DA204K
REMOTE SENEOR
IC1802 RS-140
4 3 2 1
R1804 120
C1803 10/16
R1805 2R2
COM3
CL170PGCD
CL220PGC
D1828
D1822
D1827
D1821
D1829
D1826
D1824
D1830
D1831
D1825
A S1801 CSG1085
R1812 0R0
B S1802 CSG1086
R1815 1K
1 S1807 CSG1061
2 S1813 CSG1061
3 S1818 CSG1061
4 S1808 CSG1061
5 S1814 CSG1061
6 S1819 CSG1061
S1803 ← CSG1085
S1809 → CSG1085
S1815 ↑ CSG1084
S1820 ↓ CSG1084
S1804 BAND CSG1084
S1817 AUDIO CSG1086
S1816 VOL UP CSG1085
S1821 VOL DOWN CSG1084
C S1805 CSG1086
D S1811 CSG1085
S1806 EJECT CSG1084
SOURCE S1812 CSG1086
FUNCTION S1810 CSG1086
R1838 100
R1837 100
R1836 100
R1835 100
R1842 100
R1841 100
R1848 1K
R1821 150
R1822 100
R1827 100
R1828 100
R1839 100
R1840 100
R1843 100
R1844 100
R1826 100
R1825 150
R1834 100
R1833 150
R1830 100
R1829 150

C

C KEYBOARD UNIT

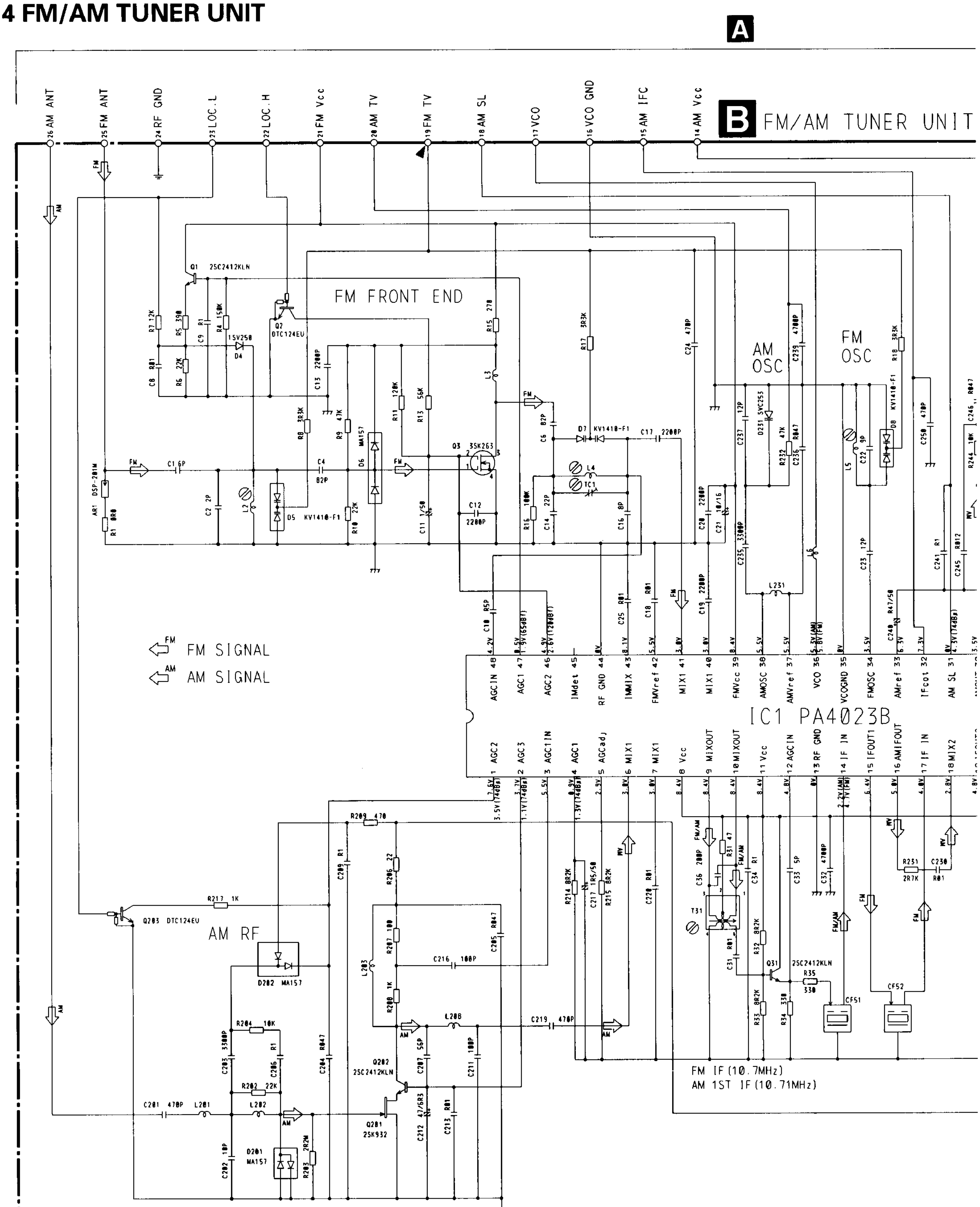

COM3
COM2
COM1
COM0
SEG39
SEG38
SEG37
SEG36
SEG35
SEG34
SEG33
SEG32
SEG31
SEG30
SEG29
SEG28
SEG27
SEG26
SEG25
SEG24
SEG23
SEG22
SEG21
SEG20
SEG19
SEG18
SEG17
SEG16
SEG15
SEG14
SEG13
SEG12
SEG11
SEG10
SEG9
SEG8
SEG7
SEG6
SEG5
SEG4
SEG3
SEG2
SEG1
SEG0
LCD, 1/4Duty, 1/3Bias
LCD
DEH-635R:CAW1392
DEH-535R:CAW1432
DEH-534R:CAW1433
805 2R2
REM
DPDT
RST
KYDT
MODA
XO
XI
VSS
KDT2
KDT3
KST5
KST4
IC1801 PD6196A
LCD DRIVER
VDD
KDT1
KDT0
KST0
KST1
KST2
KST3
LCDB
X1801
CSS1312A
4.97MHz
R1850 1K
R1845 1K
R1846 1K
R1851 1K
R1852 1K
R1806 1K
R1847 1K
R1807 1K
R1849 1K
KDT2

	DEH-635R DEH-535R	DEH-534R
D1821, 1822	CL220PGC	CL220D
D1824, 1825, 1826, 1827	CL170PGCD	CL170DCD
D1828, 1829, 1830, 1831	CL170PGCD	CL170DCD
S1801, 1803, 1809, 1811, 1816	CSG1085	CSG1079
S1802, 1805, 1810, 1812, 1817	CSG1086	CSG1080
S1804, 1806, 1815, 1820, 1821	CSG1084	CSG1078

C

Fig. 12

3.4 FM/AM TUNER UNIT


A
B FM/AM TUNER UNIT
26 AM ANT
25 FM ANT
24 RF GND
23 LOC.L
22 LOC.H
21 FM Vcc
20 AM TV
19 FM TV
18 AM SL
17 VCO
16 VCO GND
15 AM IFC
14 AM Vcc
FM FRONT END
AM OSC
FM OSC
Q1 2SC2412KLN
Q2 DTC124EU
Q3 3SK263
D4 1SV258
D5 KV1410-F1
D6 MA157
D7 KV1410-F1
D8 KV1410-F1
D231 SVC253
FM SIGNAL
AM SIGNAL
IC1 PA4023B
AGCIN 48
AGC1 47
AGC2 46
IMdet 45
RF GND 44
IMMIX 43
FMVref 42
MIX1 41
MIX1 40
FMVcc 39
AMOSC 38
AMVref 37
VCO 36
VCOGND 35
FMOSC 34
AMref 33
IFcot 32
AM SL 31
1 AGC2
2 AGC3
3 AGC1IN
4 AGC1
5 AGCadj
6 MIX1
7 MIX1
8 Vcc
9 MIXOUT
10 MIXOUT
11 Vcc
12 AGCIN
13 RF GND
14 IF IN
15 IFOUT1
16 AMIFOUT
17 IF IN
18 MIX2
AM RF
Q203 DTC124EU
D202 MA157
D201 MA157
Q202 2SC2412KLN
Q201 2SK932
Q31 2SC2412KLN
T31
CF51
CF52
FM IF (10.7MHz)
AM 1ST IF (10.71MHz)

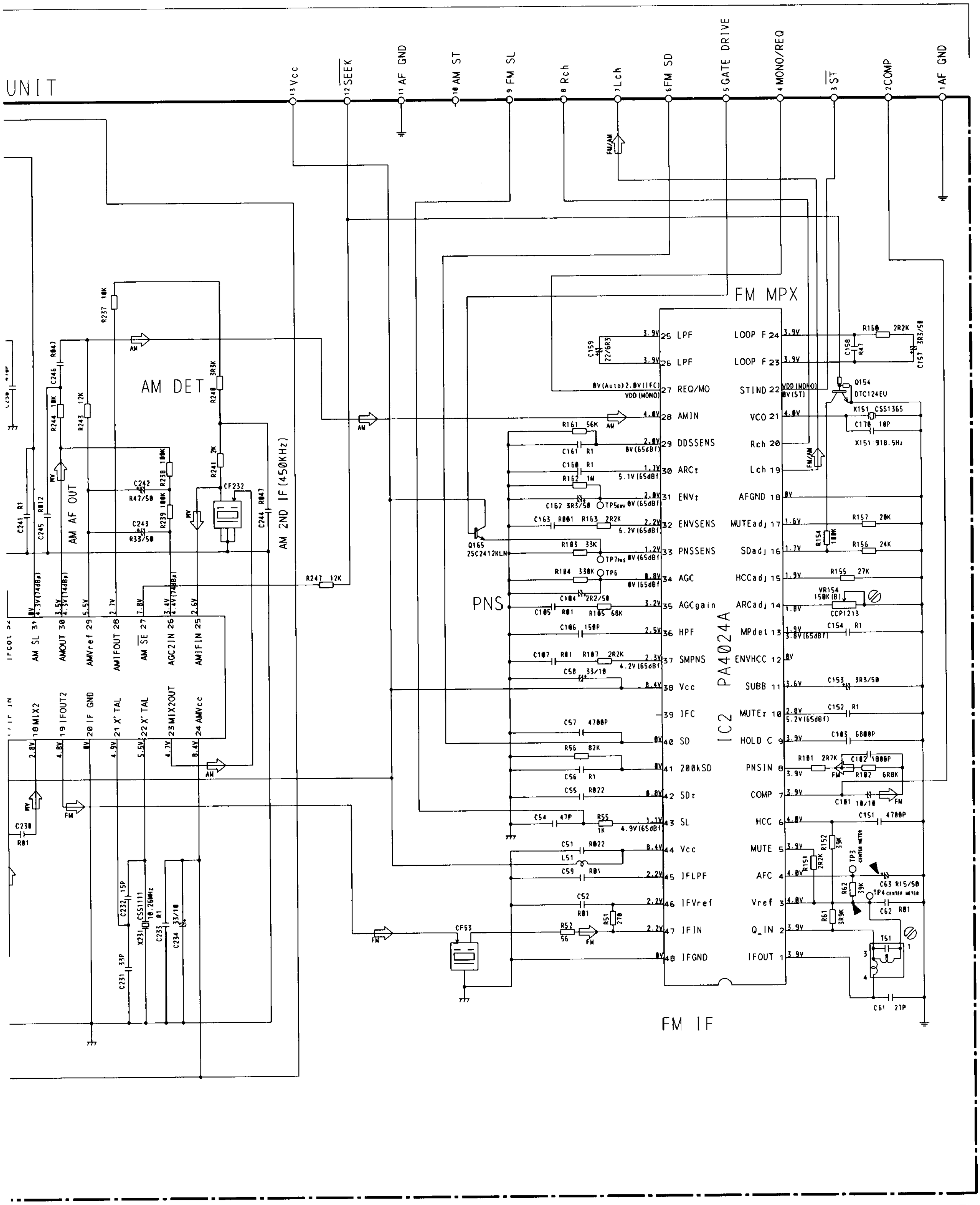

UNIT
13 Vcc
12 SEEK
11 AF GND
10 AM ST
9 FM SL
8 Rch
7 Lch
6 FM SD
5 GATE DRIVE
4 MONO/REQ
3 ST
2 COMP
1 AF GND
FM MPX
AM DET
PNS
FM IF
AM AF OUT
AM 2ND IF (450KHz)
IC2
PA4024A
25 LPF
26 LPF
27 REQ/MO
28 AMIN
29 DDSSENS
30 ARCr
31 ENVr
32 ENVSENS
33 PNSSENS
34 AGC
35 AGCgain
36 HPF
37 SMPNS
38 Vcc
39 IFC
40 SD
41 200kSD
42 SDr
43 SL
44 Vcc
45 IFLPF
46 IFVref
47 IFIN
48 IFGND
LOOP F 24
LOOP F 23
STIND 22
VCO 21
Rch 20
Lch 19
AFGND 18
MUTEadj 17
SDadj 16
HCCadj 15
ARCadj 14
MPdet 13
ENVHCC 12
SUBB 11
MUTEr 10
HOLD C 9
PNSIN 8
COMP 7
HCC 6
MUTE 5
AFC 4
Vref 3
Q_IN 2
IFOUT 1
AM SL 31
AMOUT 30
AMVref 29
AMIFOUT 28
AM SE 27
AGC2IN 26
AMIFIN 25
18 MIX2
19 IFOUT2
20 IF GND
21 X'TAL
22 X'TAL
23 MIX2OUT
24 AMVcc
Q154 DTC124EU
Q165 2SC2412KLN
X151 CSS1365
X151 918.5Hz
VR154 150K(B)
CCP1213
CF232
CF53
X231 CSS1111 10.26MHz
TS1
TP3 CENTER METER
TP4 CENTER METER
TP5
TP6
TP7
R237 10K
R047
C246
R244 10K
R243 12K
R248 3R3K
R241 2K
C242 R47/50
C243 R33/50
R238 100K
R239 100K
C244 R047
C241 R1
C245 R012
R247 12K
C230 R01
C232 15P
C231 33P
C233 R1
C234 33/10
R161 56K
C161 R1
C160 R1
R162 1M
C162 3R3/50
C163 R001 R163 2R2K
R103 33K
R104 330K
C104 2R2/50
C105 R01 R105 68K
C106 150P
C107 R01 R107 2R2K
C58 33/10
C57 4700P
R56 82K
C56 R1
C55 R022
C54 47P R55 1K
C51 R022
L51
C59 R01
C52 R01
R52 56
R51 270
C159 22/6R3
C158 R47
R160 2R2K
C157 3R3/50
C170 10P
R157 20K
R154 100K
R156 24K
R155 27K
C154 R1
C153 3R3/50
C152 R1
C103 6800P
R101 2R7K C102 1000P R102 6R8K
C101 10/10
C151 4700P
R152 39K
R151 2R2K
R62 39K
R61 3R9K
C63 R15/50
C62 R01
C61 27P
AM
FM
FM/AM
MW
3.9V
2.8V
0V(Auto) 2.8V(IFC)
VDD(MONO)
4.0V
2.0V
0V(65dBf)
1.7V
5.1V(65dBf)
6.2V(65dBf)
1.2V
2.5V
2.3V
4.2V(65dBf)
8.4V
0V
1.1V
4.9V(65dBf)
2.2V
VDD(MONO)
0V(ST)
1.6V
1.9V
1.8V
3.8V(65dBf)
3.6V
5.2V(65dBf)
4.3V(74dBµ)
3.5V
5.5V
2.7V
7.8V
2.6V
4.7V
4.9V
5.5V

Fig. 13

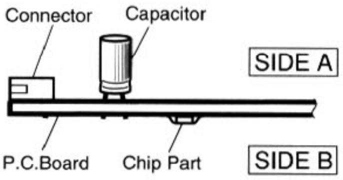
B

4. PCB CONNECTION DIAGRAM

4.1 TUNER AMP UNIT

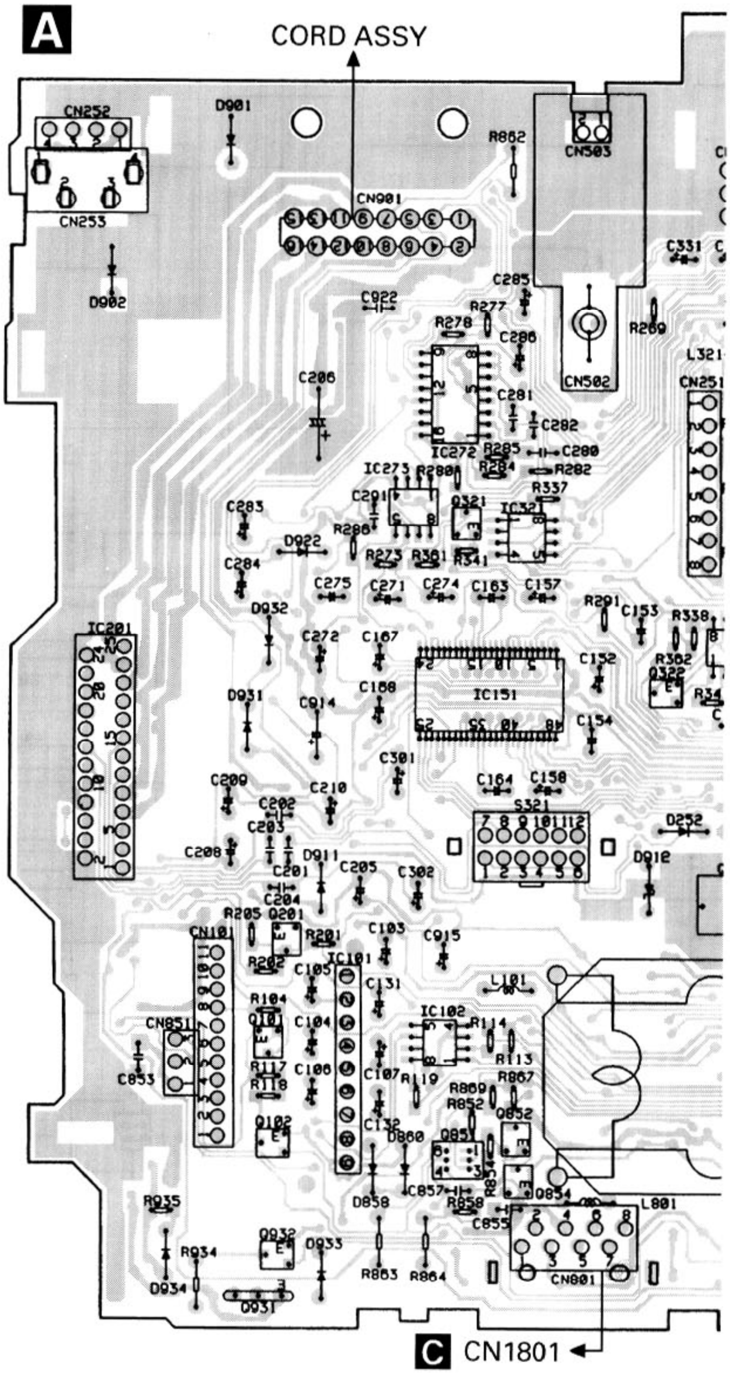
NOTE FOR PCB DIAGRAMS

1. The parts mounted on this PCB include all necessary parts for several destination.
   For further information for respective destinations, be sure to check with the schematic diagram.
2. Viewpoint of PCB diagrams



Connector
Capacitor
SIDE A
P.C.Board
Chip Part
SIDE B

IC, Q	ADJ
	VR701
IC501	
Q502	
IC751	
Q142	
Q503	
IC273 IC272	
Q321 IC701	
IC321	
Q951	
IC201	
IC322	
Q322	
IC151 Q955	
IC601 Q954	
Q956	
Q911	
Q952	
Q201	
IC101	
Q809	
Q953	
Q101 IC102	
Q802	
Q971	
Q852	
IC941	
Q851	
Q854 Q807	
Q932	
Q931	



A
CORD ASSY
CN252
D901
R862
CN503
CN253
CN901
C331
D902
C285
C922
R277
R278
C286
R269
L321
CN502
CN251
C206
C281
C282
IC272
R285
C280
R284
R282
IC273
R280
R337
C291
Q321
IC321
C283
R286
D922
R273
R361
R341
C284
C275
C271
C274
C163
C157
R291
C153
R338
D932
IC201
C272
C167
C152
R302
Q322
D931
C914
C168
IC151
C154
C301
C209
C202
C210
C164
C158
C203
S321
D252
C208
C201
D911
C205
C302
D912
C204
R205
Q201
CN101
R201
C103
C915
R202
IC101
C105
C131
L101
R104
IC102
CN851
Q101
C104
R114
R113
C853
R117
R118
C106
C107
R119
R869
R867
R852
Q852
Q102
C132
D860
Q851
R851
C857
D858
R858
Q854
L801
C855
R935
Q932
D933
R934
R863
R864
CN801
D934
Q931
C
CN1801

SIDE A

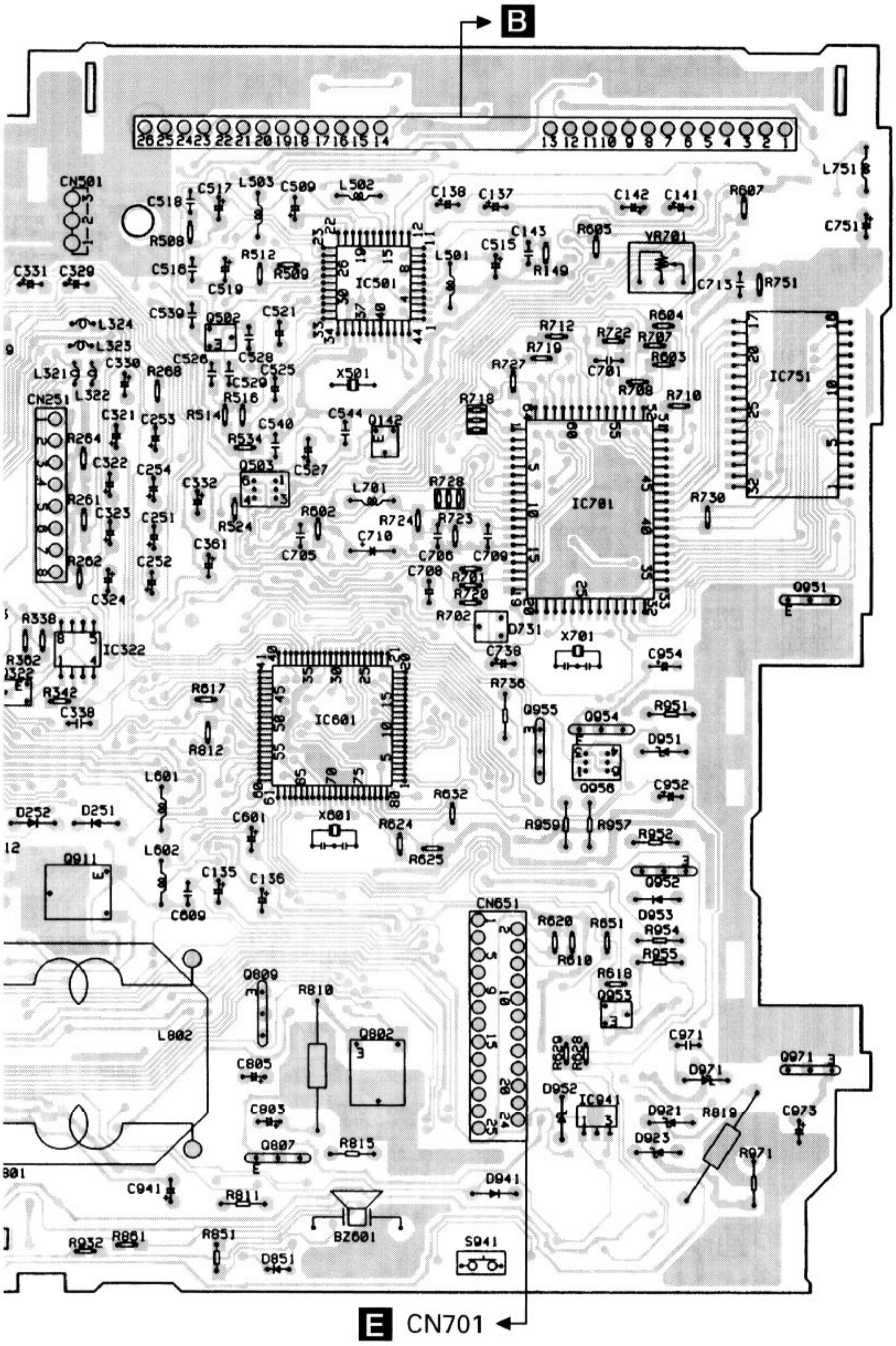
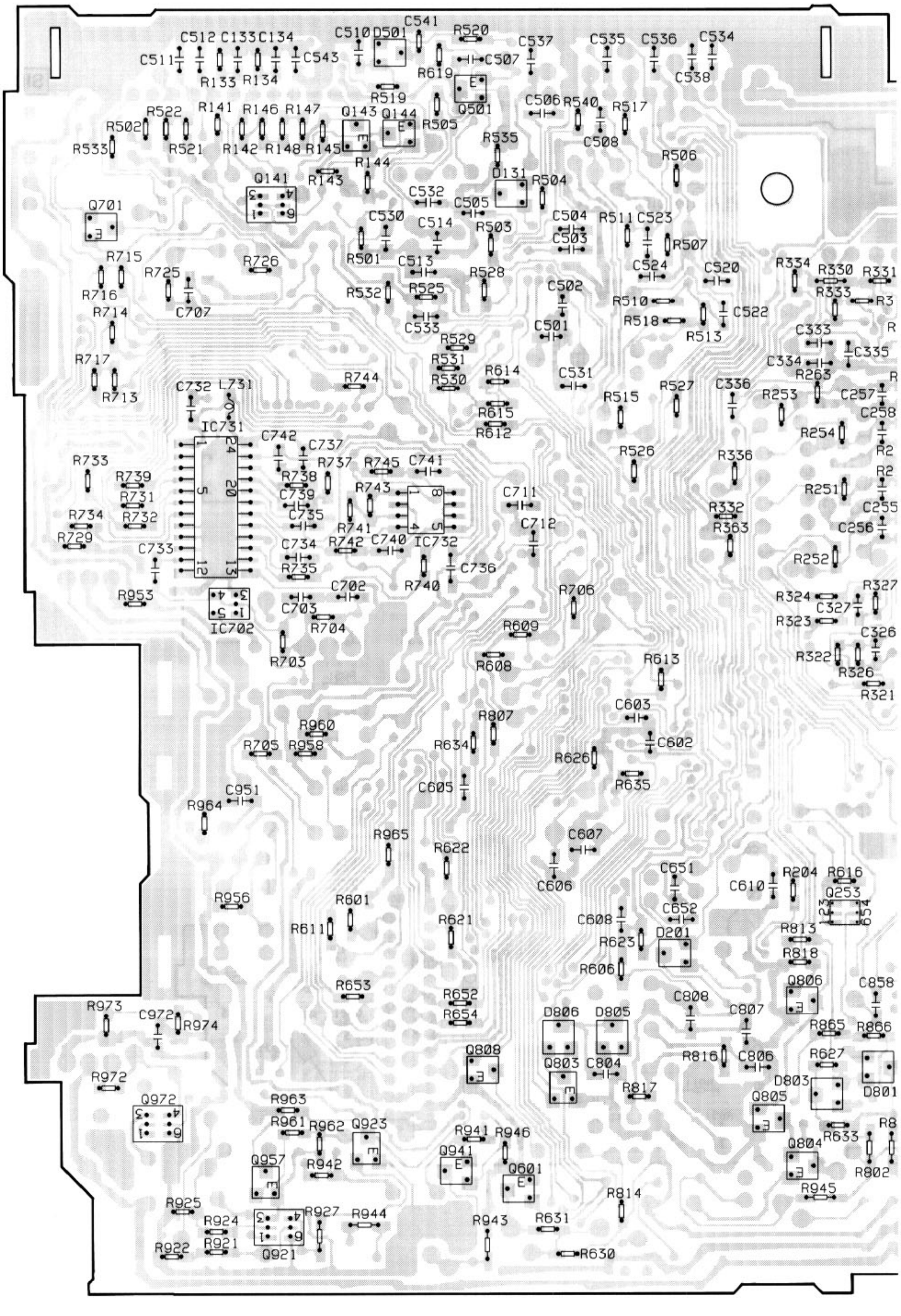

B
CN501
C518
C517
L503
C509
L502
C138
C137
C142
C141
R607
L751
C751
R508
R512
R509
IC501
L501
C515
C143
R149
R605
VR701
C713
R751
C331
C329
C516
C519
C539
Q502
C521
L324
L323
R712
R719
R722
R707
R604
R603
IC751
L321
L322
C330
C526
C528
C525
R268
X501
R727
C701
R708
R710
CN251
C321
C253
R514
R516
C529
C540
C544
Q142
R718
R264
C322
R534
Q503
C527
IC701
C254
C332
L701
R728
R730
R261
C323
C251
R524
R602
R724
R723
C710
C361
C705
C706
C709
C708
R262
C252
R701
R720
C324
Q951
R338
IC322
R702
D731
C738
X701
C954
R302
IC322
R342
R617
IC601
R736
Q955
Q954
R951
C338
R812
D951
Q956
C952
L601
D252
D251
C601
X601
R632
R624
R625
R959
R957
R952
L602
Q911
C135
C136
Q952
C609
D953
CN651
R620
R651
R954
R610
R955
R618
Q809
Q953
R810
Q802
L802
C971
C805
R629
R628
Q971
D971
D952
IC941
C803
D921
R819
C973
D923
Q807
R815
R971
C941
D941
R811
R932
R861
R851
BZ601
S941
D851
E CN701

Fig. 14

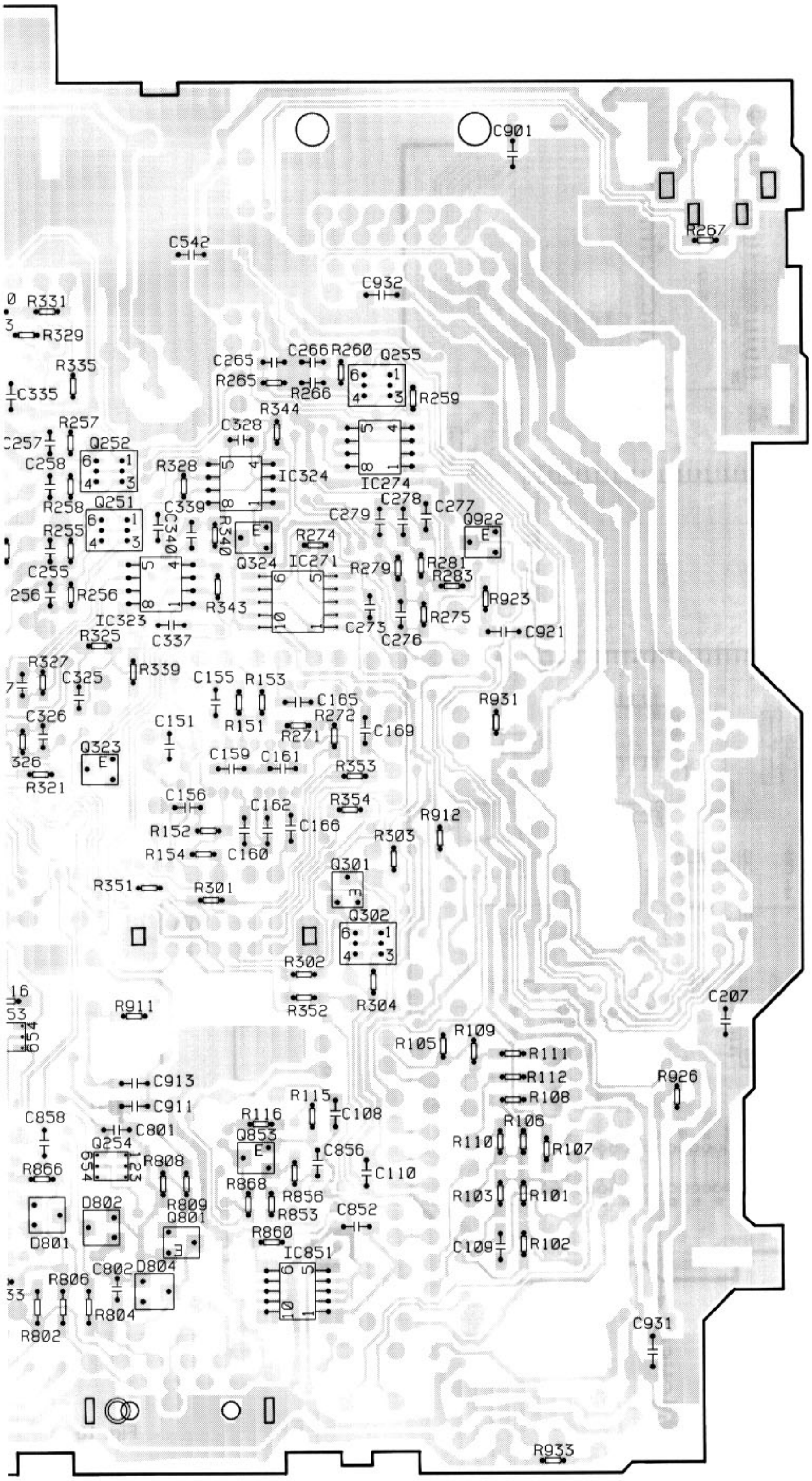
A


C512 C133 C134
C511
C543
R133 R134
C510 D501
C541
R520
C537
C535
C536
C534
C538
C507
R619
R519
Q501
C506
R540
R517
C508
R522
R141
R146
R147
Q143
Q144
R505
R502
R533
R521
R142
R148
R145
R535
R144
R143
R506
Q141
Q131
R504
C532
C505
Q701
C530
C514
R503
C504
C503
R511
C523
R507
R501
R715
R725
R726
C513
R528
C524
C520
R334
R330
R331
R716
C707
R532
R525
C502
R510
R333
R714
C533
C501
R518
R513
C522
C333
R529
C335
C334
R717
R531
R614
C531
R263
R744
R530
R713
C732
L731
R515
R527
C336
R253
C257
R615
C258
IC731
R612
R254
C742
C737
R526
R336
R733
R737
R745
C741
R739
R738
R743
R251
R731
C739
C711
R734
R732
C735
R741
R332
C255
R729
C734
R742
C740
IC732
C712
R363
C256
C733
C736
R252
R735
R740
C702
R706
R324
R327
R953
C327
IC702
C703
R704
R323
R609
C326
R703
R608
R613
R322
R326
R321
C603
R960
R807
R705
R958
R634
C602
R626
C605
R635
C951
R964
R965
R622
C607
C651
R204
R616
C606
C610
Q253
R956
R601
C652
R621
C608
R611
R813
R623
D201
R818
R606
Q806
R653
C808
C858
R652
R973
C972
D806
D805
C807
R654
R974
R865
R866
Q808
R816
R627
Q803
C804
C806
R972
R817
D803
D801
R963
Q805
Q972
R961
R962
Q923
R941
R946
R633
Q804
R802
Q941
Q957
R942
Q601
R945
R814
R925
R927
R944
R943
R631
R924
R922
R921
Q921
R630

A

IC, Q

SIDE B


C901
R267
C542
C932
R331
R329
R335
C335
C265
C266
R260
Q255
R265
R266
R259
R344
R257
C328
C257
Q252
C258
R328
IC324
IC274
R258
Q251
C339
C340
R340
C279
C278
C277
Q922
R255
R274
Q324
IC271
C255
R279
R281
R283
256
R256
R343
R923
IC323
C273
R275
R325
C337
C276
C921
R327
C325
R339
C155
R153
C165
R272
C169
C326
C151
R151
R271
R931
Q323
C159
C161
R353
326
R321
C156
C162
R354
C166
R912
R152
R303
R154
C160
Q301
R351
R301
Q302
R302
16
53
R911
R352
R304
C207
R105
R109
R111
R112
R108
C913
C911
R926
R115
R116
C108
C858
C801
Q853
R106
Q254
R808
C856
R110
R107
C110
R866
R868
R856
R103
R101
D802
R809
C852
Q801
R853
D801
R860
C109
R102
IC851
R806
C802
D804
33
R804
R802
C931
R933

Q501
Q143 Q144

Q141
Q701

Q255

Q252
IC324
IC731 IC274
Q251
Q922

Q324 IC271

IC732
IC323

IC702

Q323

Q301

Q302

Q253

Q806
Q254 Q853

Q808
Q803
Q801
Q972 Q102
Q805
Q923
Q941 Q804
Q957 Q601

Q921

Fig. 15

4.2 CD MECHANISM MODULE

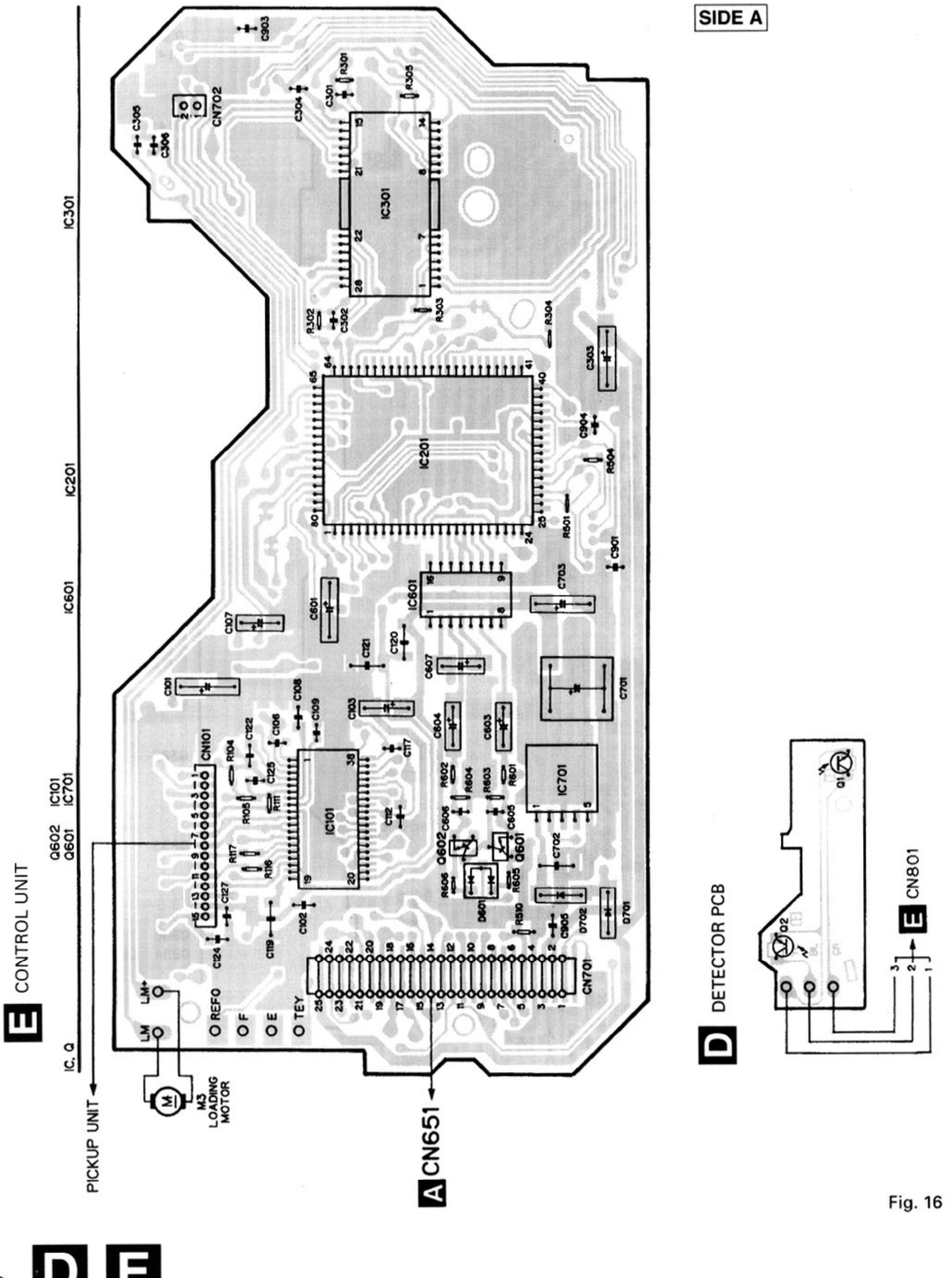

SIDE A
E CONTROL UNIT
IC, Q
Q601 Q602
IC101 IC701
IC601
IC201
IC301
PICKUP UNIT
M3 LOADING MOTOR
LM
LM+
REFO
F
E
TEY
CN101
CN701
CN702
IC101
IC201
IC301
IC601
IC701
Q601
Q602
D601
D701
D702
C101
C102
C103
C106
C107
C108
C109
C112
C117
C119
C120
C121
C122
C124
C125
C127
C301
C302
C303
C304
C305
C306
C601
C603
C604
C605
C606
C607
C701
C702
C703
C901
C903
C904
C905
R104
R105
R111
R116
R117
R301
R302
R303
R304
R305
R501
R504
R510
R601
R602
R603
R604
R605
R606
A CN651
D DETECTOR PCB
Q1
Q2
E CN801

Fig. 16

E CONTROL UNIT

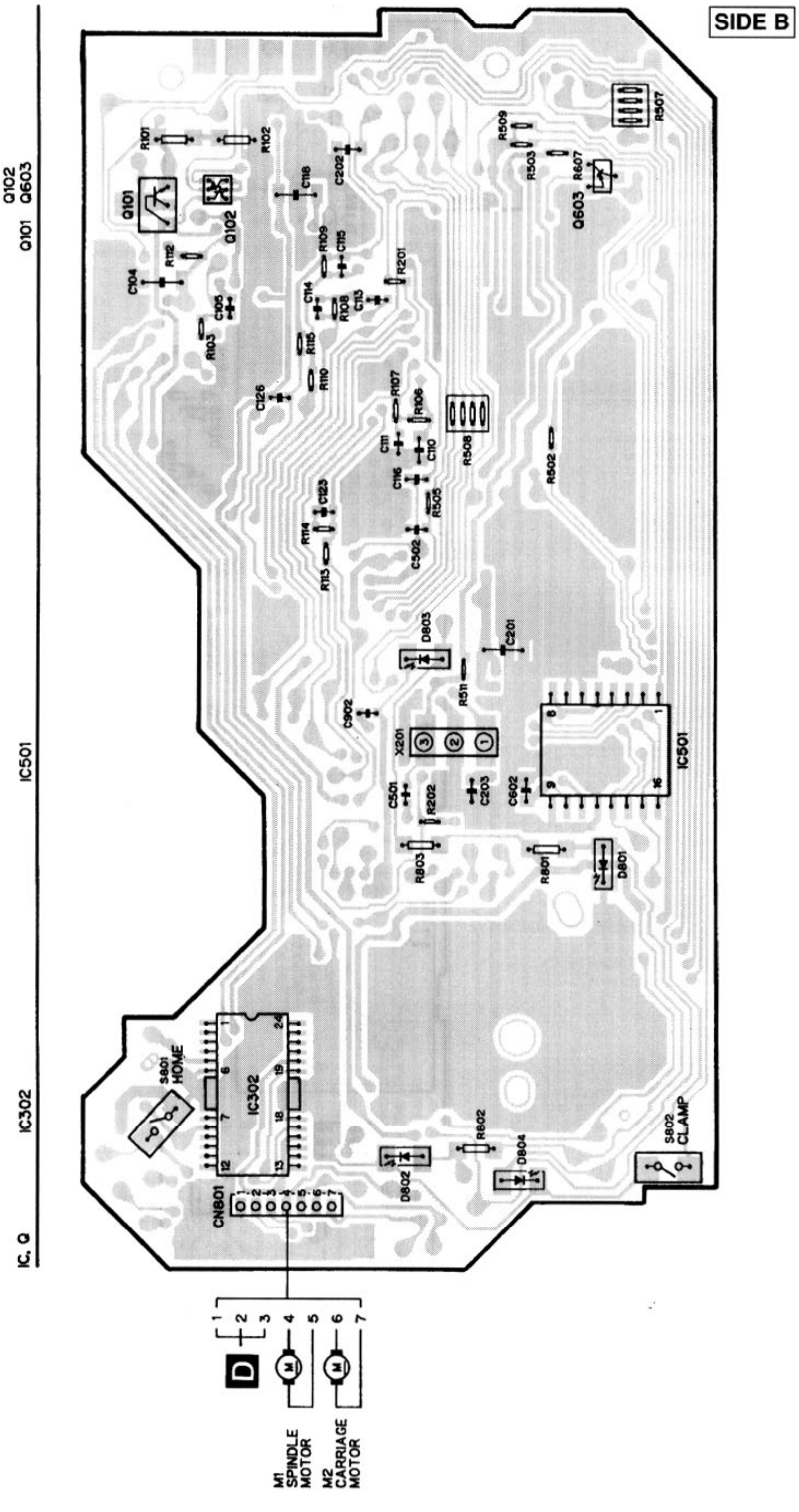
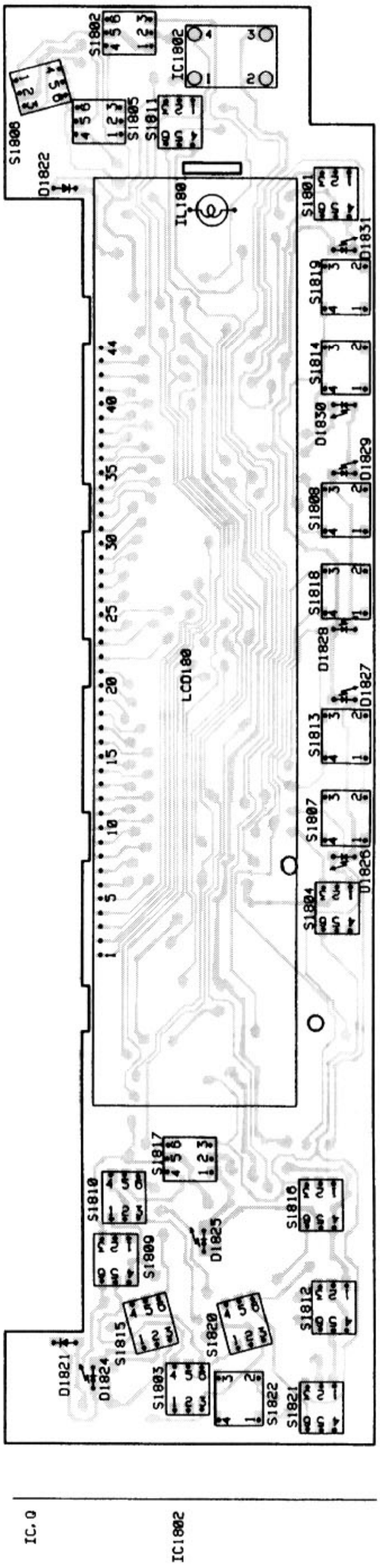

IC, Q
IC302
IC501
Q101 Q102 Q603
SIDE B
R101
R102
Q101
Q102
C104
R112
C105
R103
C118
C202
R109
C115
C114
R108
C113
R201
R115
R110
C126
R107
R106
C111
C110
R508
C116
R505
C123
R114
R113
C502
R509
R503
R607
R507
Q603
R502
D803
C201
R511
C902
X201
C501
R202
C203
C602
IC501
R803
R801
D801
S801
HOME
IC302
CN801
D802
R802
D804
S802
CLAMP
D
M1
SPINDLE
MOTOR
M2
CARRIAGE
MOTOR

Fig. 17

4.3 KEYBOARD UNIT

SIDE A


S1802
IC1802
S1800
S1805
S1811
D1822
IL1800
S1801
D1831
S1819
S1814
D1830
D1829
S1808
S1818
D1828
D1827
S1813
S1807
D1826
S1804
LCD1800
1
5
10
15
20
25
30
35
40
44
S1817
S1810
S1816
S1809
D1825
S1812
S1815
S1820
D1821
D1824
S1803
S1822
S1821
IC,Q
IC1802

C

Fig. 18

SIDE B

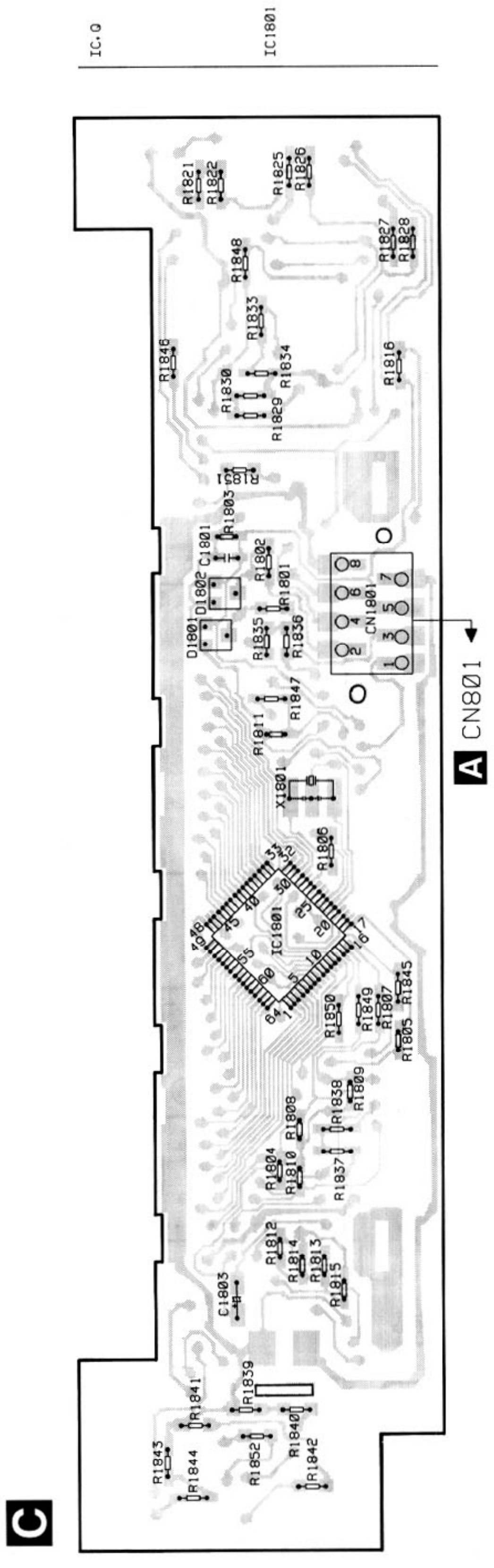

IC.Q
IC1801
R1821
R1822
R1825
R1826
R1827
R1828
R1848
R1833
R1846
R1830
R1834
R1829
R1816
R1831
R1803
C1801
D1802
R1802
R1801
D1801
R1835
R1836
CN1801
1
2
3
4
5
6
7
8
R1811
R1847
X1801
R1806
IC1801
R1850
R1849
R1807
R1845
R1805
R1838
R1809
R1808
R1804
R1810
R1837
R1812
R1814
R1813
R1815
C1803
R1839
R1841
R1840
R1843
R1844
R1852
R1842
A
CN801
C

Fig. 19

4.4 FM/AM TUNER UNIT

SIDE A

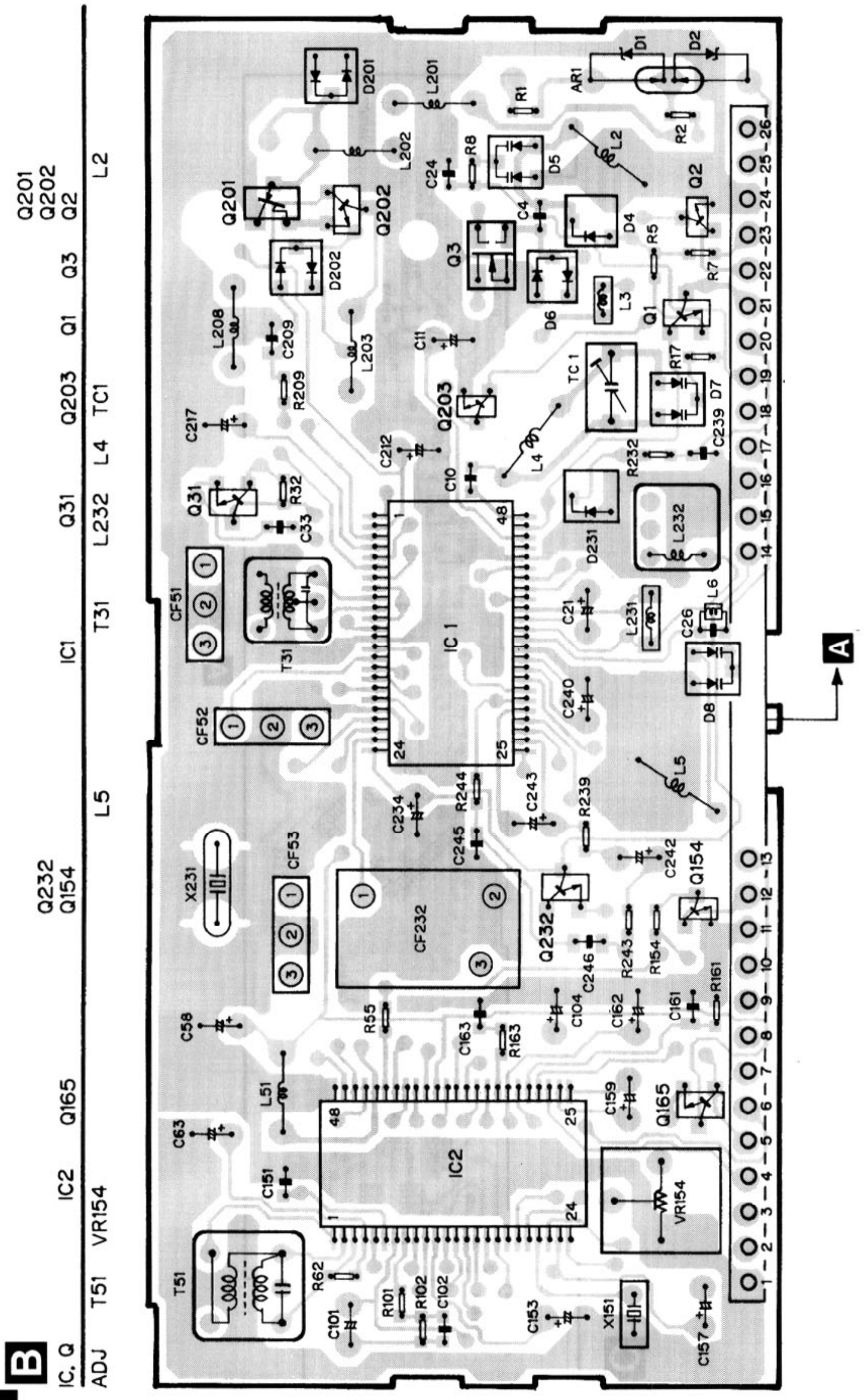
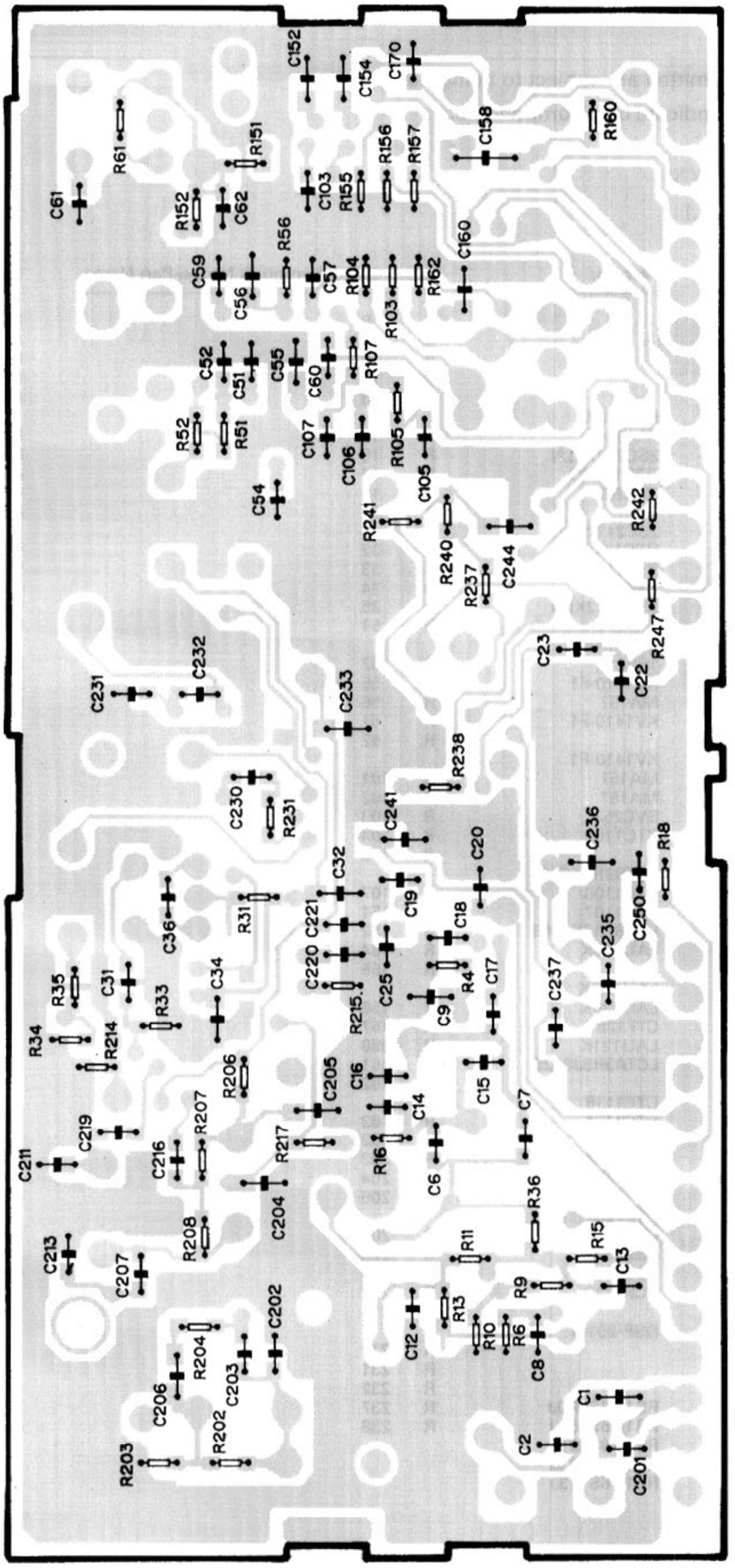

IC, Q
ADJ
T51
IC2
VR154
Q165
Q232
Q154
L5
IC1
T31
Q31
L232
L4
Q203
TC1
Q1
Q3
Q201
Q202
Q2
L2
A
B
IC 1
IC2
CF51
CF52
CF53
CF232
X231
X151
D1
D2
AR1
D201
D202
D4
D5
D6
D7
D8
D231
L201
L202
L203
L208
L3
L6
L51
L231
R1
R2
R5
R7
R8
R17
R32
R55
R62
R101
R102
R154
R161
R163
R209
R232
R239
R243
R244
C4
C10
C11
C21
C24
C26
C33
C58
C63
C101
C102
C104
C151
C153
C157
C159
C161
C162
C163
C209
C212
C217
C234
C239
C240
C242
C243
C245
C246
1 - 2 - 3 - 4 - 5 - 6 - 7 - 8 - 9 - 10 - 11 - 12 - 13
14 - 15 - 16 - 17 - 18 - 19 - 20 - 21 - 22 - 23 - 24 - 25 - 26

Fig. 20

SIDE B


C152
C154
C170
R160
C158
R61
R151
R156
R157
C61
R152
C62
C103
R155
R56
C160
C59
C56
C57
R104
R103
R162
C52
C51
C55
C60
R107
R52
R51
C107
C106
R105
C105
C54
R241
R242
R240
C244
R237
R247
C23
C22
C231
C232
C233
R238
C230
R231
C241
C20
C236
R18
C32
C19
C36
R31
C221
C18
C250
C235
R35
C31
C34
C220
C25
R4
C17
R33
C9
C237
R215
R34
R214
R206
C205
C16
C15
C7
C14
C219
R207
R217
R16
C6
C211
C216
R36
C204
R208
R11
R15
C13
C213
C207
R9
R13
C12
R10
R6
C202
R204
C8
C203
C206
C1
R202
C2
R203
C201

B

Fig. 21

B

5. ELECTRICAL PARTS LIST

(1)PARTS LIST

NOTE:

- Parts whose parts numbers are omitted are subject to being not supplied.
- The part numbers shown below indicate chip components.

Chip Resistor
RS1/○S○○○J,RS1/○○S○○○J
Chip Capacitor (except for CQS.....)
CKS....., CCS....., CSZS.....

B Unit Number : CWE1416
Unit Name : FM/AM Tuner Unit

MISCELLANEOUS

Circuit Symbol & No.		Part Name	Part No.
IC	1	IC	PA4023B
IC	2	IC	PA4024A
Q	1	Transistor	2SC2412KLN
Q	2	Transistor	DTC124EU
Q	3	FET	3SK263
Q	31	Transistor	2SC2412KLN
Q	154	Transistor	DTC124EU
Q	165	Transistor	2SC2412KLN
Q	201	FET	2SK932
Q	202	Transistor	2SC2412KLN
Q	203	Transistor	DTC124EU
D	4	Diode	1SV250
D	5	Diode	KV1410-F1
D	6	Diode	MA157
D	7	Diode	KV1410-F1
D	8	Diode	KV1410-F1
D	201	Diode	MA157
D	202	Diode	MA157
D	231	Diode	SVC253
L	2	Coil	CTC1108
L	3	Inductor	LCTB2R2K2125
L	4	Coil	CTC1108
L	5	Coil	CTC1107
L	6	Inductor	LCTBR15K1608
L	51	Ferri-Inductor	LAU150K
L	201	Ferri-Inductor	LAU4R7K
L	202	Ferri-Inductor	LAU330K
L	203	Inductor	CTF1287
L	208	Inductor	LAU121K
L	231	Inductor	LCTA3R3J3225
T	31	Coil	CTE1116
T	51	Coil	CTC1136
TC	1	Capacitor	CCL1038
CF	51	Ceramic Filter	CTF1292
CF	52	Ceramic Filter	CTF1292
CF	53	Ceramic Filter	CTF1292
CF	232	Ceramic Filter	CTF1348
X	151	Resonator 920.5kHz	CSS1365
X	231	Crystal Resonator 10.26MHz	CSS1111
VR	154	Semi-fixed 150kΩ(B)	CCP1213
AR	1	Capacitor with Discharge Gap	DSP-201M

RESISTORS

Circuit Symbol & No.		Part Name	Part No.
R	1		RS1/16S0R0J
R	4		RS1/16S154J
R	5		RS1/16S391J
R	6		RS1/16S223J
R	7		RS1/16S123J
R	8		RS1/16S332J
R	9		RS1/16S473J
R	10		RS1/16S223J
R	11		RS1/16S124J
R	13		RS1/16S563J
R	15		RS1/16S271J
R	16		RS1/16S104J
R	17		RS1/16S332J
R	18		RS1/16S332J
R	31		RS1/16S470J
R	32		RS1/16S822J
R	33		RS1/16S822J
R	34		RS1/16S331J
R	35		RS1/16S331J
R	51		RS1/16S271J
R	52		RS1/16S560J
R	55		RS1/16S102J
R	56		RS1/16S823J
R	61		RS1/16S392J
R	62		RS1/16S393J
R	101		RS1/16S272J
R	102		RS1/16S682J
R	103		RS1/16S333J
R	104		RS1/16S334J
R	105		RS1/16S683J
R	107		RS1/16S222J
R	151		RS1/16S222J
R	152		RS1/16S393J
R	154		RS1/16S104J
R	155		RS1/16S273J
R	156		RS1/16S243J
R	157		RS1/16S203J
R	160		RS1/16S222J
R	161		RS1/16S563J
R	162		RS1/16S105J
R	163		RS1/16S222J
R	202		RS1/16S223J
R	203		RS1/16S225J
R	204		RS1/16S103J
R	206		RS1/16S220J
R	207		RS1/16S101J
R	208		RS1/16S102J
R	209		RS1/16S471J
R	214		RS1/16S822J
R	215		RS1/16S822J
R	217		RS1/16S102J
R	231		RS1/16S272J
R	232		RS1/16S473J
R	237		RS1/16S103J
R	238		RS1/16S104J

=====Circuit Symbol & No.		===Part Name	Part No.
R	239		RS1/16S104J
R	240		RS1/16S332J
R	241		RS1/16S202J
R	243		RS1/16S123J
R	244		RS1/16S103J
R	247		RS1/16S123J

CAPACITORS

=====Circuit Symbol & No.		===Part Name	Part No.
C	1		CCSQCH6R0D50
C	2		CCSRCK2R0C50
C	4		CCSRCH820J50
C	6		CCSRCH820J50
C	8		CKSRYB103K25
C	9		CKSQYB104K16
C	10		CCSRCKR50C50
C	11		CEJA1R0M50
C	12		CKSRYB222K50
C	13		CKSRYB222K50
C	14		CCSRCH220J50
C	16		CCSRCH8R0D50
C	17		CKSRYB222K50
C	18		CKSRYB103K25
C	19		CKSRYB222K50
C	20		CKSRYB222K50
C	21		CEJA100M16
C	22		CCSRTH9R0D50
C	23		CCSRTH120J50
C	24		CCSRCH471J50
C	25		CKSRYB103K25
C	31		CKSRYB103K25
C	32		CKSQYB472K50
C	33		CCSRCH5R0C50
C	34		CKSQYB104K16
C	36		CCSRRH201J50
C	51		CKSRYB223K25
C	52		CKSRYB103K25
C	54		CCSRCH470J50
C	55		CKSQYB223K25
C	56		CKSQYB104K16
C	57		CKSRYB472K50
C	58		CEJA330M10
C	59		CKSRYB103K25
C	61		CCSRCH270J50
C	62		CKSRYB103K25
C	63		CEJAR15M50
C	101		CEJANP100M10
C	102		CKSRYB182K50
C	103		CKSRYB682K25
C	104		CEJA2R2M50
C	105		CKSRYB103K25
C	106		CCSRCH151J50
C	107		CKSRYB103K25
C	151		CKSRYB472K50
C	152		CKSQYB104K16
C	153		CEJA3R3M50
C	154		CKSQYB104K16
C	157		CEJA3R3M50
C	158		CKSYB474K16
C	159		CEJA220M6R3
C	160		CKSQYB104K16
C	161		CKSQYB104K16
C	162		CEJA3R3M50
C	163		CKSRYB102K50
C	170		CCSRCH100D50
C	201		CCSRCH471J50
C	202		CCSRCH100D50
C	203		CKSRYB332K50
C	204		CKSQYB473K16
C	205		CKSQYB473K16
C	206		CKSQYB104K16
C	207		CCSRCH560J50
C	209		CKSQYB104K16
C	211		CCSRCH101J50
C	212		CEJA470M6R3
C	213		CKSRYB103K25
C	216		CCSRCH101J50
C	217		CEJA1R5M50
C	219		CCSRCH471J50
C	220		CKSRYB103K25
C	230		CKSRYB103K25
C	231		CCSRCH330J50
C	232		CCSRCH150J50
C	233		CKSQYB104K16
C	234		CEJA330M10
C	235		CKSRYB332K50
C	236		CKSQYB473K16
C	237		CCSRCH120J50
C	239		CKSRYB472K50
C	240		CEJAR47M50
C	241		CKSQYB104K16
C	242		CEJAR47M50
C	243		CEJAR33M50
C	244		CKSQYB473K16
C	245		CKSRYB123K25
C	246		CKSQYB473K16
C	250		CCSRCH471J50

E Unit Number : CWX1889
Unit Name : Control Unit

MISCELLANEOUS

=====Circuit Symbol & No.		===Part Name	Part No.
IC	101	IC	UPC2572GS
IC	201	IC	UPD63702GF
IC	301	IC	XLA6997FP
IC	302	IC	XLA6285FP
IC	601	IC	TA2063F
IC	701	IC	PQ05TZ51
Q	101	Transistor	2SD1664
Q	102	Transistor	UMD2N
Q	601	Transistor	2SD1781K
Q	602	Transistor	2SD1781K
Q	603	Transistor	2SB709A
D	601	Diode	MA151WA
D	701	Diode	1SR154-400
D	702	Diode	1SR154-400
D	801		CL200IRX
D	802		CL200IRX
X	201	Ceramic Resonator 16.93MHz	CSS1363
S	801	Switch(Home)	CSN1028
S	802	Switch(Clamp)	CSN1028

RESISTORS

=====Circuit Symbol & No.		===Part Name	Part No.
R	101		RS1/8S100J
R	102		RS1/8S120J
R	103		RS1/16S102J
R	104		RS1/16S822J
R	105		RS1/16S682J
R	106		RS1/16S183J
R	107		RS1/16S822J
R	108		RS1/16S333J
R	109		RS1/16S683J
R	110		RS1/16S134J
R	111		RS1/16S273J
R	112		RS1/16S222J
R	113		RS1/16S103J
R	114		RS1/16S103J
R	115		RS1/16S102J

=====Circuit Symbol	& No.	===Part Name	Part No.
R	116		RS1/16S163J
R	117		RS1/16S163J
R	201		RS1/16S104J
R	202		RS1/16S473J
R	304		RS1/16S0R0J
R	501		RS1/16S0R0J
R	505		RS1/16S102J
R	507		RA4C102J
R	508		RA4C681J
R	510		RS1/10S0R0J
R	601		RS1/16S102J
R	602		RS1/16S102J
R	603		RS1/16S223J
R	604		RS1/16S223J
R	605		RS1/16S162J
R	606		RS1/16S162J
R	607		RS1/16S103J
R	801		RS1/8S751J
R	802		RS1/8S751J

CAPACITORS

C	101		CEV101M6R3
C	102		CKSQYB104K16
C	103		CEV470M6R3
C	104		CKSYB334K16
C	105		CCSRCH330J50
C	106		CKSRYB103K25
C	107		CEV4R7M35
C	108		CKSQYB273K50
C	109		CCSRCH101J50
C	110		CKSQYB104K16
C	111		CKSRYB332K50
C	112		CKSQYB473K16
C	113		CKSRYB103K25
C	114		CKSRYB391K50
C	115		CCSRCH121J50
C	116		CKSRYB682K25
C	117		CKSRYB333K16
C	118		CKSYB334K16
C	119		CKSYB334K16
C	120		CKSYB334K16
C	121		CKSYB334K16
C	122		CKSQYB104K16
C	123		CKSRYB472K50
C	124		CKSQYB104K16
C	125		CCSRCH6R0D50
C	126		CKSRYB153K25
C	127		CCSRCH102J25
C	201		CKSYB334K16
C	202		CKSQYB104K16
C	203		CKSQYB104K16
C	303		CEV470M16
C	304		CKSRYB103K25
C	305		CKSRYB103K25
C	306		CKSRYB103K25
C	502		CKSRYB471K50
C	601		CEV101M6R3
C	602		CKSQYB104K16
C	603		CEV4R7M35
C	604		CEV4R7M35
C	605		CKSRYB152K50
C	606		CKSRYB152K50
C	607		CEV220M6R3
C	701	22µF/6.3V	CCH1233
C	702		CKSYB334K16
C	703		CEV101M6R3

=====Circuit Symbol	& No.	===Part Name	Part No.
C	901		CCSRCH471J50
C	902		CCSRCH271J50
C	903		CCSRCH471J50
C	904		CCSRCH101J50

A Unit Number :
Unit Name : Tuner Amp Unit

MISCELLANEOUS

IC	151	IC	SN761027DL
IC	201	IC	TDA7386
IC	271	IC	See Contrast table
IC	272	IC	See Contrast table
IC	273	IC	See Contrast table
IC	274	IC	See Contrast table
IC	501	IC	PM2005B
IC	601	IC	PD4807B
IC	701	IC	PD6215B
IC	731	IC	PMW001B
IC	732	IC	NJM2903M
IC	941	IC	S-80734ANDYI
Q	141	Transistor	IMH3A
Q	142	Transistor	DTA114EK
Q	143	Transistor	2SD1757K
Q	144	Transistor	2SD1757K
Q	201	Transistor	DTC144EK
Q	252	Transistor	See Contrast table
Q	253	Transistor	IMD2A
Q	254	Transistor	See Contrast table
Q	255	Transistor	IMH3A
Q	301	Transistor	DTA124EK
Q	302	Transistor	IMH3A
Q	501	Transistor	2SC2712
Q	502	Transistor	DTC124EK
Q	503	Transistor	IMD2A
Q	601	Transistor	DTC114EK
Q	701	Transistor	DTC143TK
Q	801	Transistor	2SA1162
Q	802	Transistor	2SD1760F5
Q	803	Transistor	DTC114EK
Q	804	Transistor	DTA143EK
Q	805	Transistor	DTC114EK
Q	806	Transistor	2SC2712
Q	807	Transistor	2SB1238
Q	808	Transistor	DTC143EK
Q	809	Transistor	2SD1864
Q	851	Transistor	IMD2A
Q	852	Transistor	DTC123EK
Q	853	Transistor	See Contrast table
Q	854	Transistor	See Contrast table
Q	911	Transistor	2SD1760F5
Q	921	Transistor	IMX1
Q	922	Transistor	DTC114EK
Q	923	Transistor	2SC2712
Q	931	Transistor	See Contrast table
Q	932	Transistor	See Contrast table
Q	941	Transistor	DTA144TK
Q	951	Transistor	2SD2396
Q	952	Transistor	2SB1243
Q	953	Transistor	DTC124EK
Q	954	Transistor	2SA1674
Q	955	Transistor	2SA1674
Q	956	Transistor	IMH1A
Q	957	Transistor	2SC2712
Q	971	Transistor	2SD2396
Q	972	Transistor	IMD2A
D	131	Diode	DAN212K
D	201	Diode	DAN202K
D	251	Diode	1SS133

=====Circuit Symbol & No.===Part Name			Part No.
D	252	Diode	See Contrast table
D	501	Diode	DAN202K
D	731	Diode	MA3047(M)
D	801	Diode	DA204K
D	802	Diode	DA204K
D	803	Diode	DA204K
D	804	Diode	MA3062(M)
D	805	Diode	MA3075(L)
D	806	Diode	MA3039(H)
D	851	LED	BR4361F
D	901	Diode	ERA15-02VH
D	902	Diode	ERA15-02VH
D	911	Diode	ERA15-02VH
D	912	Diode	HZS6L(B1)
D	921	Diode	HZS7L(C3)
D	922	Diode	ERA15-02VH
D	923	Diode	HZS7L(A1)
D	931	Diode	ERA15-02VH
D	932	Diode	ERA15-02VH
D	933	Diode	See Contrast table
D	934	Diode	See Contrast table
D	941	Diode	1SS133
D	951	Diode	HZS9L(B3)
D	952	Diode	HZS9L(A2)
D	953	Diode	1SS133
D	971	Diode	HZS9L(B1)
L	501	Ferri-Inductor	LAU2R2K
L	502	Ferri-Inductor	LAU2R2K
L	503	Ferri-Inductor	LAU2R2K
L	601	Ferri-Inductor	LAU2R2K
L	602	Inductor	LAU100K
L	701	Inductor	LAU100K
L	731	Inductor	LCTB2R2K2125
L	801	Ferri-Inductor	LAU2R2K
L	802	Transformer	MTX9006
TH	601	Thermistor	CCX1031
X	501	Crystal Resonator 7.200MHz	CSS1379
X	601	Ceramic Resonator 4.194MHz	CSS1047
X	701	Crystal Resonator 4.332MHz	CSS1056
S	941	Switch	CSG1046
VR	701	Semi-fixed 22kΩ(B)	CCP1321
		FM/AM Tuner Unit	CWE1416
BZ	601	Buzzer	CPV1011

RESISTORS

=====Circuit Symbol & No.===Part Name			Part No.
R	133		RS1/10S272J
R	134		RS1/10S272J
R	143		RS1/10S224J
R	144		RS1/10S224J
R	145		RS1/10S222J
R	146		RS1/10S222J
R	147		RS1/10S223J
R	148		RS1/10S223J
R	149		RS1/10S824J
R	151		RS1/10S272J
R	152		RS1/10S272J
R	153		RS1/10S151J
R	154		RS1/10S151J
R	201		RS1/10S103J
R	202		RS1/10S331J
R	204		RS1/10S103J
R	205		RS1/10S103J
R	253		See Contrast table
R	254		See Contrast table
R	257		See Contrast table
R	258		See Contrast table
R	259		See Contrast table
R	260		See Contrast table
R	263		See Contrast table
R	264		See Contrast table
R	265		RS1/10S223J
R	266		RS1/10S223J
R	268		See Contrast table
R	269		See Contrast table
R	271		See Contrast table
R	272		See Contrast table
R	273		See Contrast table
R	274		See Contrast table
R	275		See Contrast table
R	277		See Contrast table
R	278		See Contrast table
R	279		See Contrast table
R	280		See Contrast table
R	281		See Contrast table
R	282		See Contrast table
R	283		See Contrast table
R	284		See Contrast table
R	285		See Contrast table
R	286		See Contrast table
R	291		See Contrast table
R	301		RS1/10S151J
R	302		RS1/10S151J
R	303		RS1/10S104J
R	304		RS1/10S104J
R	351		RS1/10S0R0J
R	352		RS1/10S0R0J
R	353		RS1/10S0R0J
R	354		RS1/10S0R0J
R	501		RS1/10S0R0J
R	502		RS1/10S222J
R	503		RS1/10S222J
R	504		RS1/10S102J
R	505		RS1/10S222J
R	506		RS1/10S681J
R	507		RS1/10S472J
R	508		RS1/10S682J
R	509		RS1/10S682J
R	510		RS1/10S561J
R	511		RS1/10S103J
R	512		RS1/10S472J
R	513		RS1/10S222J
R	514		RS1/10S392J
R	515		RS1/10S392J
R	516		RS1/10S152J
R	517		RS1/10S102J
R	518		RS1/10S272J
R	519		RS1/10S102J
R	520		RS1/10S103J
R	522		RS1/10S681J
R	524		RS1/10S562J
R	525		RS1/10S473J
R	526		RS1/10S224J
R	527		RS1/10S223J
R	528		RS1/10S562J
R	529		RS1/10S472J
R	530		RS1/10S472J
R	531		RS1/10S472J
R	532		RS1/10S473J
R	533		RS1/10S102J
R	535		RS1/10S0R0J

=====Circuit Symbol & No.===Part Name		Part No.
R	540	RS1/10S0R0J
R	601	RS1/10S222J
R	602	RS1/10S473J
R	603	RS1/10S473J
R	604	RS1/10S473J
R	605	RS1/10S473J
R	606	RS1/10S473J
R	607	RS1/10S473J
R	608	RS1/10S473J
R	609	RS1/10S473J
R	610	RS1/10S473J
R	611	RS1/10S222J
R	612	RS1/10S681J
R	613	RS1/10S681J
R	614	RS1/10S681J
R	615	RS1/10S681J
R	616	See Contrast table
R	617	See Contrast table
R	618	RS1/10S473J
R	619	RS1/10S393J
R	620	RS1/10S473J
R	621	RS1/10S473J
R	622	RS1/10S222J
R	623	RS1/10S473J
R	624	RS1/10S104J
R	625	RS1/10S912J
R	626	RS1/10S473J
R	627	RS1/10S473J
R	628	RS1/10S393J
R	629	RS1/10S473J
R	630	RS1/10S202J
R	631	RS1/10S102J
R	632	RN1/10SE2202D
R	634	RS1/10S102J
R	635	RS1/10S0R0J
R	651	RS1/10S681J
R	652	RS1/10S681J
R	653	RS1/10S681J
R	654	RS1/10S681J
R	701	RS1/10S681J
R	702	RS1/10S681J
R	703	RS1/10S222J
R	704	RS1/10S105J
R	705	RS1/10S681J
R	706	RS1/10S681J
R	707	RS1/10S681J
R	708	RS1/10S681J
R	710	RS1/10S473J
R	712	RS1/10S681J
R	718	RA3C681J
R	719	RS1/10S681J
R	720	RS1/10S681J
R	722	RS1/10S473J
R	723	RS1/10S223J
R	724	RS1/10S223J
R	725	RS1/10S222J
R	726	RS1/10S102J
R	727	RS1/10S681J
R	729	RS1/10S0R0J
R	731	RS1/10S102J
R	732	RS1/10S102J
R	733	RS1/10S102J
R	734	RS1/10S102J
R	735	RS1/10S102J
R	736	RD1/4PU151J
R	737	RS1/10S333J
R	738	RS1/10S0R0J
R	739	RS1/10S102J
R	740	RS1/10S102J
R	741	RS1/10S222J
R	742	RS1/10S222J
R	743	RS1/10S684J
R	744	RS1/10S681J
R	745	RS1/10S562J
R	802	RS1/8S222J
R	804	RS1/8S222J
R	806	RS1/8S222J
R	807	RS1/10S102J
R	808	RS1/10S223J
R	809	RS1/10S682J
R	810	RS2PMF100J
R	811	RD1/4PU471J
R	812	RS1/10S103J
R	813	RS1/10S224J
R	814	RS1/10S222J
R	815	RD1/4PU102J
R	816	RS1/10S132J
R	817	RS1/10S822J
R	818	RS1/10S104J
R	819	RS2PMF220J
R	851	RS1/8S331J
R	852	RS1/10S103J
R	853	See Contrast table
R	854	RS1/10S163J
R	856	See Contrast table
R	858	See Contrast table
R	861	See Contrast table
R	862	RD1/4PU102J
R	863	See Contrast table
R	864	See Contrast table
R	865	RS1/10S103J
R	866	RS1/10S102J
R	867	See Contrast table
R	868	See Contrast table
R	869	RS1/10S473J
R	911	RS1/10S392J
R	912	RS1/10S101J
R	921	RS1/10S103J
R	922	RS1/10S473J
R	923	RS1/10S103J
R	924	RS1/10S103J
R	925	RS1/10S473J
R	926	RS1/10S472J
R	927	RS1/8S224J
R	933	See Contrast table
R	934	See Contrast table
R	941	RS1/10S102J
R	942	RS1/10S822J
R	943	RS1/8S471J
R	946	RS1/10S473J
R	951	RD1/4PU221J
R	952	RD1/4PU301J
R	953	RS1/10S1R0J
R	954	RD1/4PU331J
R	955	RD1/4PU331J
R	956	RS1/10S472J
R	957	RD1/4PU102J
R	958	RS1/10S472J
R	959	RD1/4PU102J
R	960	RS1/10S472J

=====Circuit Symbol & No.===Part Name			Part No.
R	961		RS1/10S103J
R	962		RS1/10S473J
R	963		RS1/10S473J
R	965		RS1/10S0R0J
R	971		RD1/4PU221J
R	972		RS1/10S221J
R	973		RS1/10S472J
R	974		RS1/10S222J
CAPACITORS			
C	133		CKSQYB223K50
C	134		CKSQYB223K50
C	135		CEJA4R7M35
C	136		CEJA4R7M35
C	137		CEJA2R2M50
C	138		CEJA2R2M50
C	141		CEJA1R0M50
C	142		CEJA1R0M50
C	143		CKSQYB103K50
C	151		CKSQYB473K50
C	152		CEJA470M10
C	153		CEJANP100M16
C	154		CEJANP100M16
C	155		CKSQYB822K50
C	156		CKSQYB822K50
C	157		CEJA1R0M50
C	158		CEJA1R0M50
C	159		CKSQYB183K50
C	160		CKSQYB183K50
C	161		CKSQYB102K50
C	162		CKSQYB102K50
C	163		CEJANP2R2M35
C	164		CEJANP2R2M35
C	165		CKSQYB333K50
C	166		CKSQYB333K50
C	167		CEJA220M16
C	168		CEJA2R2M50
C	169		CKSQYB104K50
C	201		CKSQYB224K16
C	202		CKSQYB224K16
C	203		CKSQYB224K16
C	204		CKSQYB224K16
C	205		CEJA1R0M50
C	206	3300μF/16V	CCH1150
C	207		CKSQYB473K50
C	208		CEJA100M16
C	209		CEJA1R0M50
C	210		CEJA330M16
C	253		CEJA4R7M35
C	254		CEJA4R7M35
C	257		See Contrast table
C	258		See Contrast table
C	271		See Contrast table
C	272		See Contrast table
C	273		See Contrast table
C	274		See Contrast table
C	275		See Contrast table
C	276		See Contrast table
C	277		See Contrast table
C	278		See Contrast table
C	279		See Contrast table
C	280		See Contrast table
C	281		See Contrast table
C	282		See Contrast table
C	283		See Contrast table

=====Circuit Symbol & No.===Part Name			Part No.
C	284		See Contrast table
C	285		See Contrast table
C	286		See Contrast table
C	291		See Contrast table
C	301		CEJA100M16
C	302		CEJA100M16
C	501		CCSQCH150K50
C	502		CCSQCH150K50
C	503		CKSQYB103K50
C	504		CKSQYB103K50
C	505		CCSQCH101K50
C	506		CKSQYB103K50
C	507		CKSQYB103K50
C	508		CKSQYB102K50
C	509		CEJA220M10
C	510		CKSQYB223K50
C	511		CKSQYB152K50
C	513		CKSQYB103K50
C	514		CCSQCH101K50
C	515		CEJA220M6R3
C	516		CKSQYB103K50
C	517		CEJA220M6R3
C	518		CKSQYB103K50
C	519		CEJA220M10
C	520		CKSQYB103K50
C	521	4.7μF/16V	CCH1250
C	522		CKSQYB103K50
C	523		CKLSR473K16
C	524		CKSQYB332K50
C	525	4.7μF/16V	CCH1250
C	526		CKSQYB103K50
C	527		CEJAR47M50
C	528		CKSQYB103K50
C	529		CKSQYB103K50
C	531		CKSQYB223K50
C	532		CKSQYB223K50
C	536		CKSQYB103K50
C	542		CKSQYB473K50
C	543		CKSQYB473K50
C	601		CEJA4R7M35
C	602		CKSQYB103K50
C	603		CKSQYB473K50
C	605		CKSQYB473K50
C	651		CCSQCH821J50
C	652		CCSQCH821J50
C	701		CKSYB224K16
C	702		CCSQCH270J50
C	703		CCSQCH270J50
C	705		CKSQYB103K50
C	706		CCSQCH101K50
C	707		CKSQYB103K50
C	708		CEJANP4R7M16
C	709		CKSQYB103K50
C	712		CKSQYB473K50
C	713		CKSQYB473K50
C	732		CKSQYB104K50
C	733		CKSQYB102K50
C	734		CKSQYB472K50
C	735		CKSQYB104K50
C	736		CKSYB105K16
C	737		CKSQYB473K50
C	738		CEJA100M16
C	739		CKSQYB104K50
C	740		CKSQYB103K50
C	741		CKSQYB102K50

=====Circuit Symbol & No.===Part Name Part No.

C	742		CKSQYB222K50
C	802		CKSQYB104K25
C	803		CEJA100M16
C	804		CKSQYB103K50
C	805		CEJA100M16
C	806		CKSQYB103K50
C	807		CKSQYB333K50
C	808		CKSQYB333K50
C	855		See Contrast table
C	856		See Contrast table
C	857		CKSQYB103K50
C	858		CKSQYB473K50
C	911		CKSQYB103K50
C	913		CKSQYB472K50
C	914	1000µF/16V	CCH1149
C	915		CEJA470M10
C	921		CKSYB105K16
C	922		CKSYB102K50
C	931		See Contrast table
C	932		CKSYB103K50
C	941		CEJA2R2M50
C	951		CKSQYB103K50
C	952		CEJA101M16
C	954		CEAS331M10
C	971		CKSQYB473K50
C	972		CKSQYB102K50
C	973		CEAL101M10

CONTRAST TABLE of TUNER AMP UNIT

DEH-635R/EW, DEH-535R/EW and DEH-534R/EW have the same construction except for the following:

Symbol & Description	Part No.	
	DEH-635R/EW	DEH-535R/EW DEH-534R/EW
IC271 IC	M5282FP	Not used
IC272 IC	MC14052BF	Not used
IC273 IC	NJM2068MD	Not used
IC274 IC	NJM2068MD	Not used
Q252 Transistor	IMH3A	Not used
Q254 Transistor	IMD2A	Not used
Q853 Transistor	DTC123EK	Not used
Q854 Transistor	DTC123EK	Not used
Q931 Transistor	2SB1243	Not used
Q932 Transistor	DTC114EK	Not used
D252 Diode	1SS133	Not used
D933, 934 Diode	ERA15-02VH	Not used
R253, 254	RS1/10S681J	Not used
R257, 258	RS1/10S223J	Not used
R259, 260	RS1/10S821J	RS1/10S681J
R263	RS1/10S0R0J	Not used
R264, 617	RS1/10S0R0J	Not used
R268, 269	Not used	RS1/10S0R0J
R271, 272	RS1/10S183J	Not used
R273, 277, 278, 861	RS1/10S103J	Not used
R274	RS1/10S243J	Not used
R275	RS1/10S683J	Not used
R279, 281, 283	RS1/10S104J	Not used
R280, 282, 284	RS1/10S104J	Not used
R285, 286	RS1/10S105J	Not used
R291, 867	RS1/10S473J	Not used
R616	Not used	RS1/10S473J
R853	RS1/10S103J	Not used
R856	RS1/10S163J	Not used
R858	RS1/10S163J	Not used
R863, 864	RD1/4PU102J	Not used
R868	RS1/10S473J	Not used
R933	RS1/10S472J	Not used
R934	RD1/4PU272J	Not used
C257, 258	CCSQCH221J50	Not used
C271	CEJA220M10	Not used
C272	CEJA101M10	Not used
C273	CKSQYB472K50	Not used
C274, 283, 284	CEJA4R7M35	Not used
C275	CEJANP220M10	Not used
C276	CKSQYB222K50	Not used
C277	CKSQYB183K50	Not used
C278	CKSQYB473K50	Not used
C279	CKSQYB273K50	Not used
C280	CKSYB103K50	Not used
C281	CKSQYB223K50	Not used
C282	CKSQYB153K50	Not used
C285, 286	CEJA1R0M50	Not used
C291, 855	CKSQYB103K50	Not used
C856	CKSQYB103K50	Not used
C931	CKSYB103K50	Not used

=====Circuit Symbol & No.===Part Name Part No.

C Unit Number :
Unit Name : Keyboard Unit

MISCELLANEOUS

IC	1801	IC	PD6196A
IC	1802	HIC Module	RS-140
D	1801	Diode	DA204K
D	1802	Diode	DA204K
D	1821	LED	See Contrast table
D	1822	LED	See Contrast table
D	1824	LED	See Contrast table
D	1825	LED	See Contrast table
D	1826	LED	See Contrast table
D	1827	LED	See Contrast table
D	1828	LED	See Contrast table
D	1829	LED	See Contrast table
D	1830	LED	See Contrast table
D	1831	LED	See Contrast table
X	1801	Ceramic Resonator 4.97MHz	CSS1312
S	1801	Push Switch	See Contrast table
S	1802	Push Switch	See Contrast table
S	1803	Push Switch	See Contrast table
S	1804	Push Switch	See Contrast table
S	1805	Push Switch	See Contrast table
S	1806	Push Switch	See Contrast table
S	1807	Push Switch	CSG1061
S	1808	Push Switch	CSG1061
S	1809	Push Switch	See Contrast table
S	1810	Push Switch	See Contrast table
S	1811	Push Switch	See Contrast table
S	1812	Push Switch	See Contrast table
S	1813	Push Switch	CSG1061
S	1814	Push Switch	CSG1061
S	1815	Push Switch	See Contrast table

=====Circuit Symbol & No.===Part Name Part No.

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S	1816	Push Switch	See Contrast table
S	1817	Push Switch	See Contrast table
S	1818	Push Switch	CSG1061
S	1819	Push Switch	CSG1061
S	1820	Push Switch	See Contrast table
S	1821	Push Switch	See Contrast table
IL	1801	EL	CEL1489
		LCD	See Contrast table

RESISTORS

R	1801	RS1/8S222J
R	1802	RS1/8S222J
R	1803	RS1/10S472J
R	1804	RS1/10S121J
R	1805	RS1/10S2R2J
R	1806	RS1/8S102J
R	1807	RS1/8S102J
R	1812	RS1/10S0R0J
R	1815	RS1/10S102J
R	1816	RS1/8S0R0J
R	1821	RS1/8S151J
R	1822	RS1/8S101J
R	1825	RS1/8S151J
R	1826	RS1/8S101J
R	1827	RS1/8S101J
R	1828	RS1/8S101J
R	1829	RS1/8S151J
R	1830	RS1/8S101J
R	1833	RS1/8S151J
R	1834	RS1/8S101J
R	1835	RS1/8S101J
R	1836	RS1/8S101J
R	1837	RS1/8S101J
R	1838	RS1/8S101J
R	1839	RS1/8S101J
R	1840	RS1/8S101J
R	1841	RS1/8S101J
R	1842	RS1/8S101J
R	1843	RS1/8S101J
R	1844	RS1/8S101J
R	1845	RS1/8S102J
R	1846	RS1/8S102J
R	1847	RS1/8S102J
R	1848	RS1/8S102J
R	1849	RS1/8S102J
R	1850	RS1/8S102J
R	1851	RS1/8S102J
R	1852	RS1/8S102J

CAPACITORS

C	1801	CKSQYB104K50
C	1803	CEV100M16

CONTRAST TABLE of KEYBOARD UNIT

DEH-635R/EW, DEH-535R/EW and DEH-534R/EW have the same construction except for the following:

Symbol & Description	Part No.	
	DEH-635R/EW	DEH-535R/EW
LCD	CAW1392	CAW1432

=====Circuit Symbol & No.===Part Name Part No.

--- ------ -- -------------------------

Symbol & Description	Part No.	
	DEH-635R/EW	DEH-534R/EW
D1821, 1822 LED	CL220PGC	CL220D
D1824, 1825 LED	CL170PGCD	CL170DCD
D1826, 1827 LED	CL170PGCD	CL170DCD
D1828, 1829 LED	CL170PGCD	CL170DCD
D1830, 1831 LED	CL170PGCD	CL170DCD
S1801 Push Switch	CSG1085	CSG1079
S1802 Push Switch	CSG1086	CSG1080
S1803 Push Switch	CSG1085	CSG1079
S1804 Push Switch	CSG1084	CSG1078
S1805 Push Switch	CSG1086	CSG1080
S1806 Push Switch	CSG1084	CSG1078
S1809 Push Switch	CSG1085	CSG1079
S1810 Push Switch	CSG1086	CSG1080
S1811 Push Switch	CSG1085	CSG1079
S1812 Push Switch	CSG1086	CSG1080
S1815 Push Switch	CSG1084	CSG1078
S1816 Push Switch	CSG1085	CSG1079
S1817 Push Switch	CSG1086	CSG1080
S1820 Push Switch	CSG1084	CSG1078
S1821 Push Switch	CSG1084	CSG1078
LCD	CAW1392	CAW1433

D Unit Number :
Unit Name : Detector PCB

Q	1	Photo-transistor	CPT-230S-X
Q	2	Photo-transistor	CPT-230S-X

Miscellaneous Parts List

		Pickup Unit(Service)	CXX1230
M	1	Motor Unit(Spindle)	CXA8912
M	2	CRG Motor Unit(Carriage)	CXA8986
M	3	Load Motor Unit(Loading)	CXA8702

6. ADJUSTMENT

6.1 TUNER ADJUSTMENT

● Connection Diagram

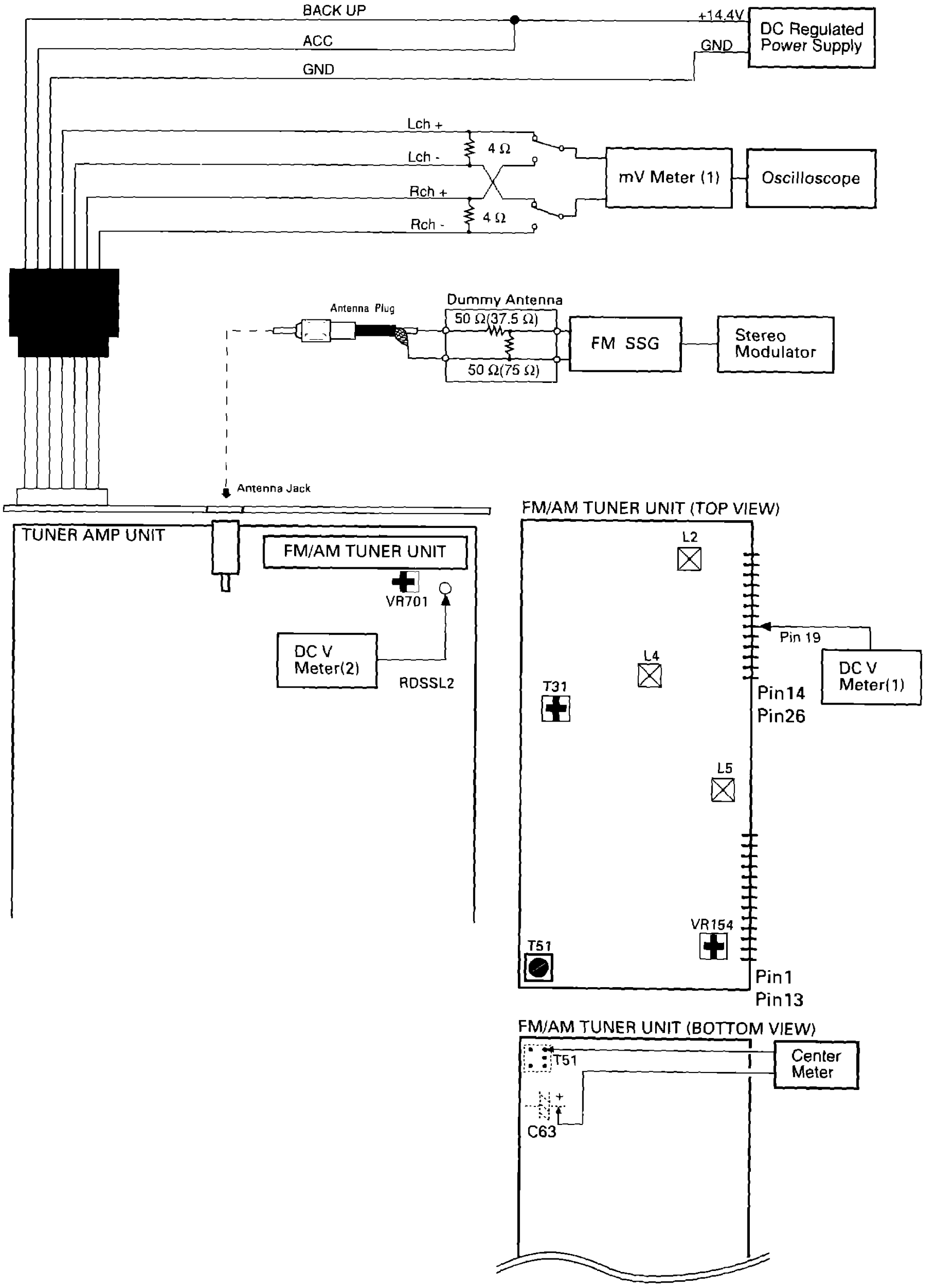

BACK UP
ACC
GND
+14.4V
GND
DC Regulated Power Supply
Lch +
Lch -
4 Ω
Rch +
Rch -
4 Ω
mV Meter (1)
Oscilloscope
Antenna Plug
Dummy Antenna
50 Ω(37.5 Ω)
50 Ω(75 Ω)
FM SSG
Stereo Modulator
Antenna Jack
TUNER AMP UNIT
FM/AM TUNER UNIT
VR701
DC V Meter(2)
RDSSL2
FM/AM TUNER UNIT (TOP VIEW)
L2
Pin 19
DC V Meter(1)
L4
T31
Pin14
Pin26
L5
VR154
T51
Pin1
Pin13
FM/AM TUNER UNIT (BOTTOM VIEW)
T51
Center Meter
C63

Fig. 22

FM ADJUSTMENT

Modulation M:MONO MOD., 400Hz 30%(22.5kHz Dev.)
S:STEREO MOD., 1kHz, L or R=30%(20.25kHz+7.5kHz Dev.)

NOTE:Before proceeding to further adjustments after switching power ON, let the tuner run for ten minutes to allow the circuits to stabilize.

		FM SSG		Displayed	Adjustment	Adjustment Method
	No.	Frequency(MHz)	Level(dBf)	Frequency(MHz)	Point	(Switch Position)
TUN Volt	1	•••••	•••••	108.0	L5	DC V Meter(1) : 6V
IF	1	98.1 M	60	98.1	T51	Center Meter : 0
ANT Coil	1	98.1 M	5	98.1	L2	mV Meter(1) : Maximum
RF Coil	1	98.1 M	5	98.1	L4	mV Meter(1) : Maximum
Image	1	129.3 M	60—80	107.9	TC1	mV Meter(1) : Minimum
IFT	1	98.1 M	5	98.1	T31	mV Meter(1) : Maximum (STEREO MODE)
ARC	1	98.1 S	39	98.1	VR154	mV Meter(1) : Separation 5dB (STEREO MODE)

RDS SL ADJUSTMENT

		FM SSG		Displayed	Adjustment	Adjustment Method
	No.	Frequency(MHz)	Level(dBf)	Frequency(MHz)	Point	(Switch Position)
	1	106.1 M	52	106.1	VR701	DC V Meter(2) : 2.25V±0.05V

6.2 CHECKING THE GRATING

● Checking the Grating After Changing the Service Pickup Unit

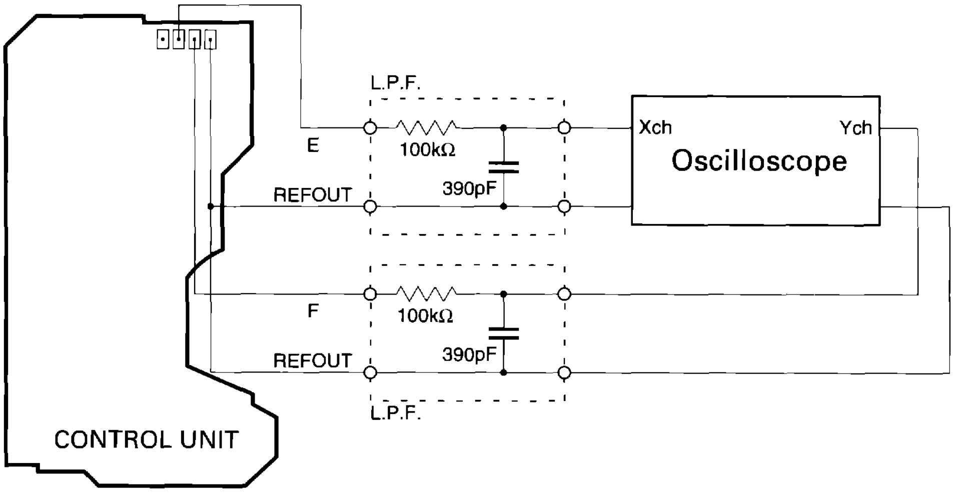
· **Note :**
Unlike previous CD mechanism modules the grating angle of the Pickup unit cannot be adjusted after the Pickup unit is changed. The Pickup unit in the CD mechanism module is adjusted on the production line to match the CD mechanism module and is thus the best adjusted Pickup unit for the CD mechanism module. Changing the Pickup unit is thus best considered as a last resort. However, if the Pickup unit must be changed, the grating should be checked using the procedure below.

· **Purpose :**
To check that the grating is within an acceptable range.

· **Symptoms of Mal-adjustment :**
If the grating is off by a large amount symptoms such as being unable to close tracking, being unable to perform track search operations, or track searching taking a long time, may appear.

· **Method :**

· Measuring Equipment	· Oscilloscope, Two L.P.F.
· Measuring Points	· E, F, REFOUT
· Disc	· ABEX TCD-784
· Mode	· TEST MODE



· **Checking Procedure**

1. In test mode, load the disc and switch the 5V regulator on.
2. Using the → and ← buttons, move the Pickup unit to the innermost track.
3. Press key **3** to close focus, the display should read "91". Press key **2** to implement the tracking balance adjustment the display should now read "81". Press key **3** 4 times. The display will change, returning to "81" on the fourth press.
4. As shown in the diagram above, monitor the LPF outputs using the oscilloscope and check that the phase difference is within 75° . Refer to the photographs supplied to determine the phase angle.
5. If the phase difference is determined to be greater than 75° try changing the Pickup unit to see if there is any improvement. If, after trying this a number of times, the grating angle does not become less than 75° then the mechanism should be judged to be at fault.

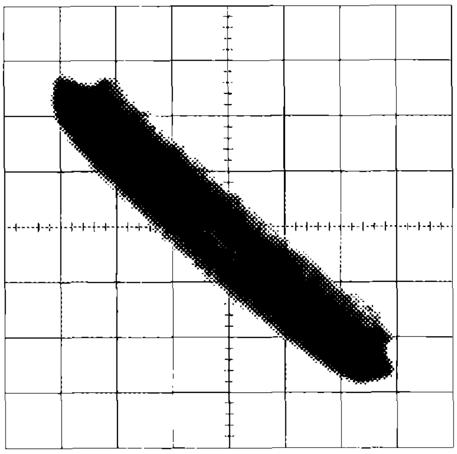
· **Note**
Because of eccentricity in the disc and a slight misalignment of the clamping center the grating waveform may be seen to "wobble" (the phase difference changes as the disc rotates). The angle specified above indicates the average angle.

· **Hint**
Reloading the disc changes the clamp position and may decrease the "wobble".

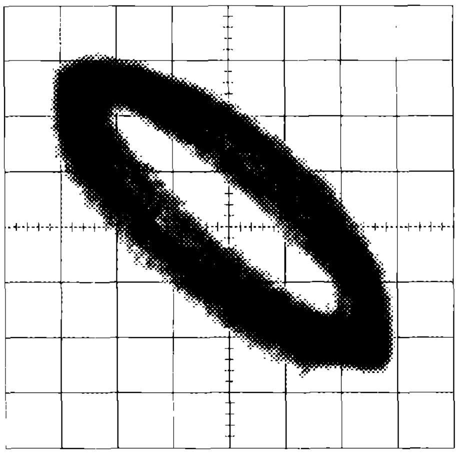
Grating waveform

Ech → Xch 20mV/div, AC
Fch → Ych 20mV/div, AC

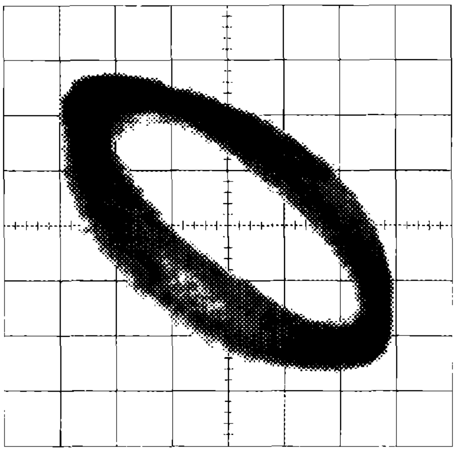
0°



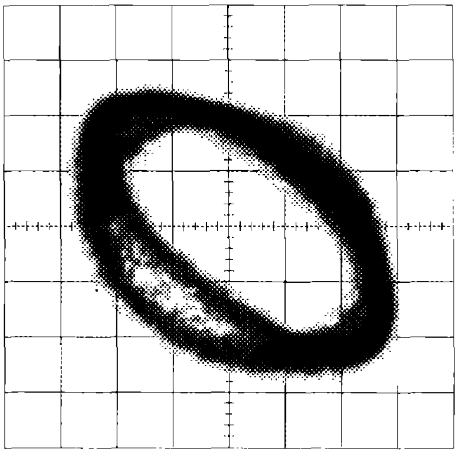
30°



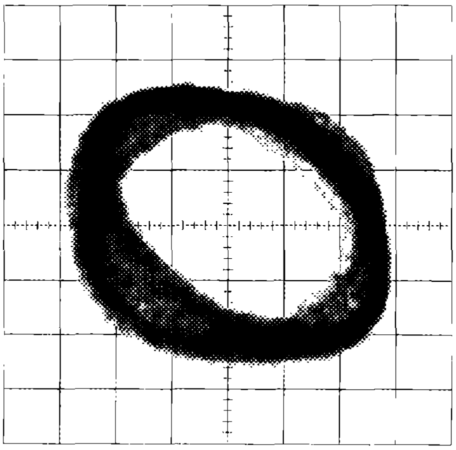
45°



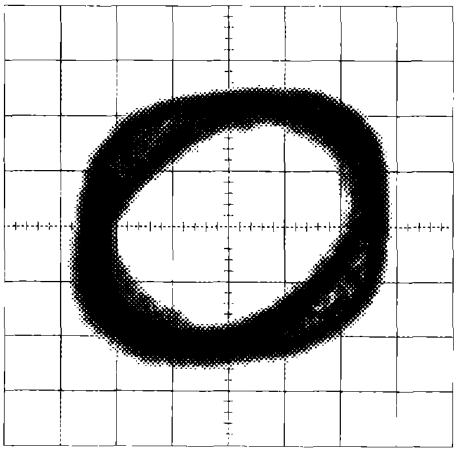
60°



75°



90°

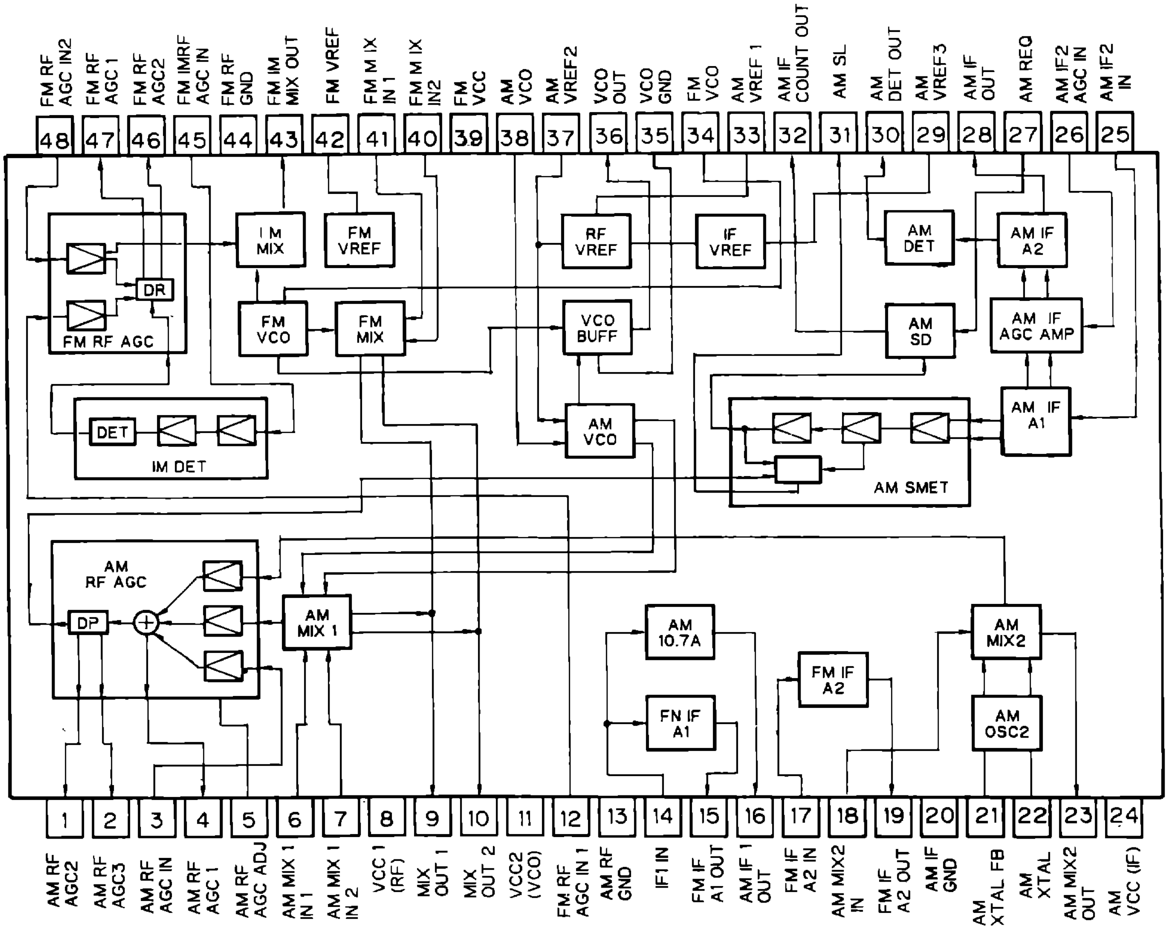


7. GENERAL INFORMATION

7.1 PARTS

7.1.1 IC

PA4023B

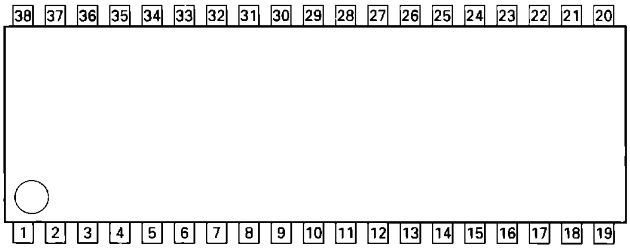

FM RF AGC IN2
FM RF AGC 1
FM RF AGC2
FM IMRF AGC IN
FM RF GND
FM IM MIX OUT
FM VREF
FM M IX IN 1
FM M IX IN2
FM VCC
AM VCO
AM VREF2
VCO OUT
VCO GND
FM VCO
AM VREF 1
AM IF COUNT OUT
AM SL
AM DET OUT
AM VREF3
AM IF OUT
AM REQ
AM IF2 AGC IN
AM IF2 IN
48
47
46
45
44
43
42
41
40
39
38
37
36
35
34
33
32
31
30
29
28
27
26
25
DR
FM RF AGC
I M MIX
FM VREF
FM VCO
FM MIX
RF VREF
IF VREF
VCO BUFF
AM DET
AM IF A2
AM SD
AM IF AGC AMP
AM IF A1
AM SMET
AM VCO
DET
IM DET
AM RF AGC
DP
AM MIX 1
AM 10.7A
FN IF A1
FM IF A2
AM MIX2
AM OSC2
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
AM RF AGC2
AM RF AGC3
AM RF AGC IN
AM RF AGC 1
AM RF AGC ADJ
AM MIX 1 IN 1
AM MIX 1 IN 2
VCC 1 (RF)
MIX OUT 1
MIX OUT 2
VCC2 (VCO)
FM RF AGC IN 1
AM RF GND
IF1 IN
FM IF A1 OUT
AM IF 1 OUT
FM IF A2 IN
AM MIX2 IN
FM IF A2 OUT
AM IF GND
AM XTAL FB
AM XTAL
AM MIX2 OUT
AM VCC (IF)

● **Pin Functions (UPC2572GS)**

Pin No.	Pin Name	I/O	Function and Operation
1	EFM-IN	I	EFM comparator input
2	AGC-OUT	O	AGC amplifier output
3	C. AGC		Connects AGC peak detection condenser
4	RF-IN	I	RF signal DC component cut input
5	RF-OUT	O	RF amplifier output
6	RF-	I	RF amplifier inverted input
7	C1, 3T		Connects RF3T component detection condenser
8	C2, 3T		Connects RF3T component detection condenser
9	Vcc		Power supply
10	A	I	A signal input
11	C	I	C signal input
12	B	I	B signal input
13	D	I	D signal input
14	F	I	F signal input
15	E	I	E signal input
16	PD	I	APC amplifier input
17	LD	O	APC amplifier output
18	LDON	I	Laser diode ON/OFF input

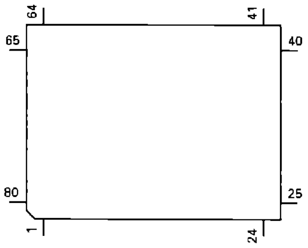
Pin No.	Pin Name	I/O	Function and Operation
19	VREF-OUT	O	Reference voltage output
20	VREF-IN	I	Reference voltage input
21	DET-OUT	O	Vibration detection circuit output
22	DET-IN	I	Vibration detection circuit input
23	TE-OUT2	O	Tracking error amplifier output (fourfold gain)
24	TE-OUT1	O	Tracking error amplifier output (singlefold gain)
25	TE-	I	Tracking error amplifier inverted input
26	GND		GND
27	FE-	I	Focus error amplifier inverted input
28	FE-OUT	O	Focus error amplifier output
29	C.FE	I	Focus error signal DC component cut input
30	3T-OUT	O	RF3T component output
31	MIRR	O	MIRR signal output
32	RFOK	O	RFOK signal output
33	DEFECT	O	DEFECT signal output
34	C. DEF		Connects DEFECT signal detection condenser
35	EFM-OUT	O	EFM comparator output
36	ASY	I	EFM comparator level input
37	TE-BAL	I	Tracking balance control
38	FE-BAL	I	Focus balance control

UPC2572GS



IC's marked by are MOS type.*
Be careful in handling them because they are very liable to be damaged by electrostatic induction.

*UPD63702GF

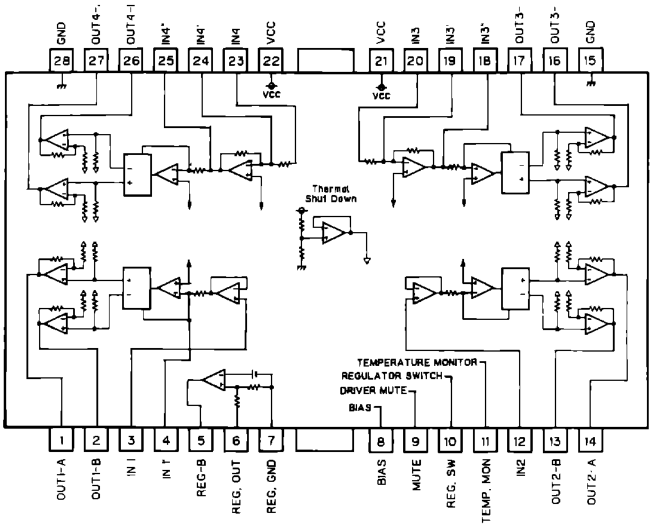


● Pin Functions (UPD63702GF)

Pin No.	Pin Name	I/O	Function and Operation
1	D.VDD		Supplies current of positive voltage to the logic circuits
2	$\overline{RST}$	I	System reset input pin
3	AO	I	Microcomputer interface AO="L": $\overline{STB}$ active and set to address register AO="H": $\overline{STB}$ active and set to parameter
4	$\overline{STB}$	I	Signal to latch serial data within the LSI
5	$\overline{SCK}$	I	Clock input pin to input and output serial data
6	SO	O	Outputs serial data and status signal
7	SI	I	Serial data input pin
8	D.GND		Logic circuit GND
9	X.GND		Crystal oscillation circuit GND
10	XTAL	I	Crystal oscillator connection pin
11	$\overline{XTAL}$	O	Crystal oscillator connection pin
12	X.VDD		Supplies current of positive voltage to the crystal oscillation circuit
13	DA.VDD		Supplies current of positive voltage to the D/A converter
14	R+	O	Right channel analog audio data output pin
15	R-	O	Right channel analog audio data output pin
16,17	DA.GND		D/A converter GND
18	L-	O	Left channel analog audio data output pin
19	L+	O	Left channel analog audio data output pin
20	DA.VDD		Supplies current of positive voltage to the D/A converter
21	D.VDD		Supplies current of positive voltage to logic circuit

Pin No.	Pin Name	I/O	Function and Operation
22	FLAG	O	Flag output pin to indicate that audio data currently being output consists of noncorrectable data
23	WDCK	O	Pin to output double the frequency of LRCK
24	C16M	O	Pin to output the clock
25	EMPH	O	Output pin for the pre-emphasis data in the sub-Q code
26	DIN	I	Input pin for serial audio data
27	DOUT	O	Output pin for the serial audio data
28	SCKO	O	Output pin for the clock for the serial audio data
29	LRCK	O	Signals to distinguish the right and left channels of the audio data output from DOUT. Frequency is 44.1kHz at 50% duty at normal regeneration
30	TX	O	Output pin for the digital audio interface data
31	CTLV	I	Oscillation control pin for high-frequency clock generation VCO used for the digital PLL upon regeneration at fast speed of 2- or 4-fold
32	POUT	O	Output point for phase comparison
33	D.GND		GND for the logic circuit
34	VCO	I	Input pin for the inverter
35	$\overline{\text{VCO}}$	O	Output pin for the inverter
36	D.VDD		Supplies current of positive voltage to the logic circuit
37	PLCK	O	Pin for monitoring the bit clock
38	LOCK	O	Indicates "H" when the synchronized pattern detection signal matches the frame counter output at the EFM recovery modulation, and "L" when they don't match
39	WFCK	O	Minute-cycle signal for the bit clock, the signal indicates the cycle of 1 frame (approx. 7.35kHz)
40	RFCK	O	Minute-cycle signal for the clock, the signal indicates cycle of 1 frame (approx. 7.35kHz)
41	D.GND		GND for the logic circuit
42,43	TEST0,1	I	Test pins
44,45	TM2, TM4	I	Pins for controlling regeneration at fast speed of 2- or 4-fold
46-49	T4-T7	I	Test pins
50,51	C1D1, C1D2	O	Output pin for indicating the C1 error correction results
52-54	C2D1-C2D3	O	Output pin for indicating the C2 error correction results
55	D.VDD		Supplies current of positive voltage to the logic circuit
56	SFSY	O	Outputs 1 word of the subcode. Generally, 1 cycle is approx 136 micro seconds
57	SBSY	O	The signal indicates the beginning of the subcode block. The SFSY signal is output at high level every 98 times
58	SBSO	O	Output pin for the subcode data
59	SBCK	I	Input pin for the clock signal for read-out of the subcode data
60	A.GND		GND for the analog circuit
61	MD	O	Output pin for the spindle drive
62	SD	O	Output pin for the sled drive
63	TD	O	Output pin for the tracking drive
64	FD	O	Output pin for the focus drive
65	FBAL	O	Output pin for the focus balance control
66	TBAL	O	Output pin for the tracking balance control
67	A.VDD		Supplies current of positive voltage to the analog circuit
68	TBC	I	Switches coefficient banks for the tracking filter
69	EFM	I	Input pin for the EFM signal
70	HOLD	I	Input pin for the hold control signal
71	RFOK	I	Input pin for the RFOK signal
72	MIRR	I	Input pin for the MIRR signal
73	A.GND		GND for the analog circuit
74	HOME	I	Home position detector input
75	VR1	I	The signal input through these pins is digitized to 8-bit by the A/D converter, which by operation of the assigned register, can be read into the microcomputer
76	FE	I	Inputs a focus-error signal from the RF amplifier
77	TE	I	Inputs a tracking-error signal from the RF amplifier
78	TEC	I	Input pin for the tracking comparator
79	REFOUT	O	Output point for midpoint potential for the A/D converter for the LSI portion
80	A.VDD		Supplies current of accurate voltage to the analog circuit

XLA6997FP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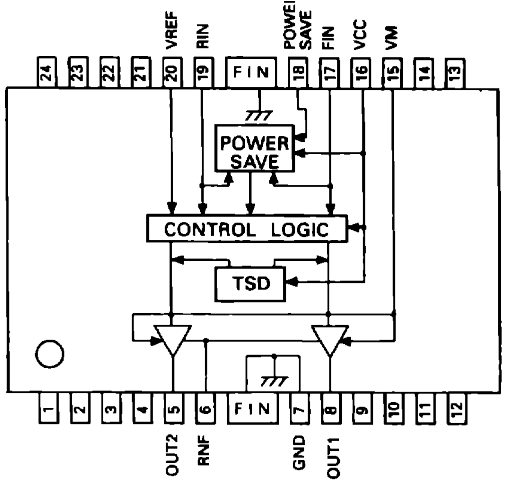
OUT4-
OUT4-I
IN4'
IN4'
IN4
VCC
VCC
IN3
IN3'
IN3'
OUT3-
OUT3-
GND
28
27
26
25
24
23
22
21
20
19
18
17
16
15
VCC
VCC
Thermal Shut Down
TEMPERATURE MONITOR
REGULATOR SWITCH
DRIVER MUTE
BIAS
1
2
3
4
5
6
7
8
9
10
11
12
13
14
OUT1-A
OUT1-B
IN 1
IN 1'
REG-B
REG, OUT
REG, GND
BIAS
MUTE
REG. SW
TEMP. MON
IN2
OUT2-B
OUT2-A

XLA6285FP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RIN
POWER SAVE
FIN
VCC
VM
24
23
22
21
20
19
FIN
18
17
16
15
14
13
POWER SAVE
CONTROL LOGIC
TSD
1
2
3
4
5
6
FIN
7
8
9
10
11
12
OUT2
RNF
GND
OUT1

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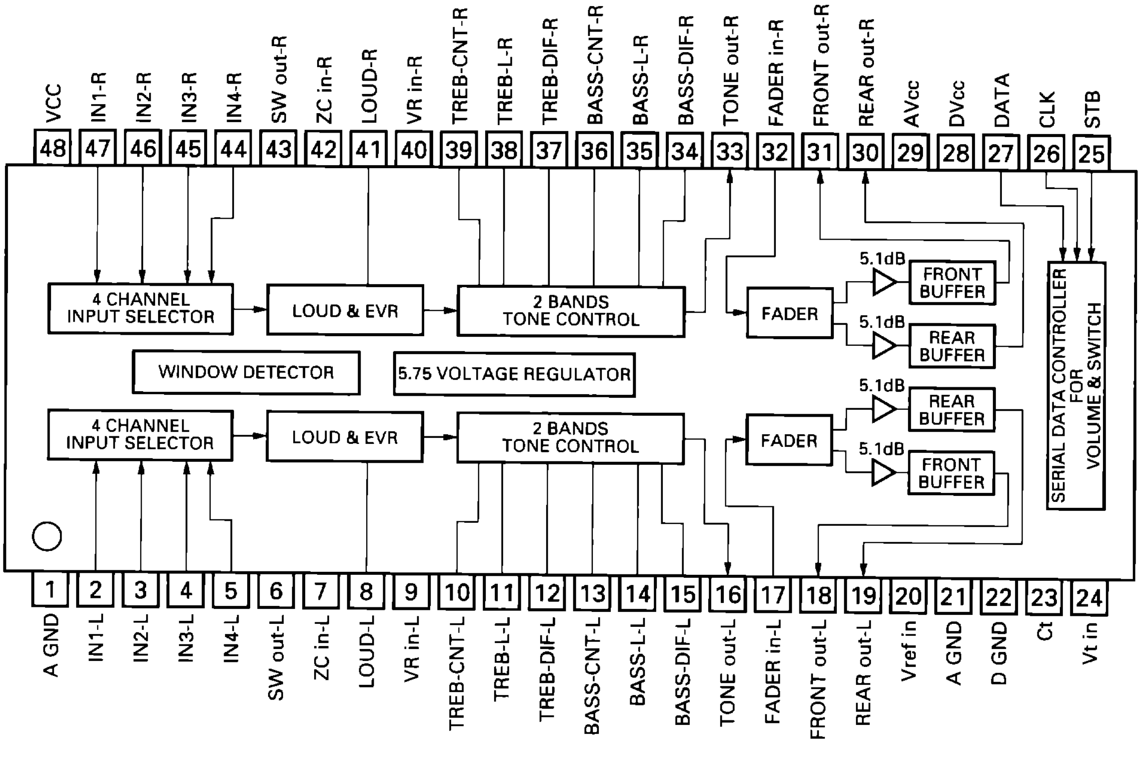
VCC
IN1-R
IN2-R
IN3-R
IN4-R
SW out-R
ZC in-R
LOUD-R
VR in-R
TREB-CNT-R
TREB-L-R
TREB-DIF-R
BASS-CNT-R
BASS-L-R
BASS-DIF-R
TONE out-R
FADER in-R
FRONT out-R
REAR out-R
AVcc
DVcc
DATA
CLK
STB
48
47
46
45
44
43
42
41
40
39
38
37
36
35
34
33
32
31
30
29
28
27
26
25
4 CHANNEL INPUT SELECTOR
LOUD & EVR
2 BANDS TONE CONTROL
FADER
5.1dB
FRONT BUFFER
5.1dB
REAR BUFFER
WINDOW DETECTOR
5.75 VOLTAGE REGULATOR
5.1dB
REAR BUFFER
5.1dB
FRONT BUFFER
4 CHANNEL INPUT SELECTOR
LOUD & EVR
2 BANDS TONE CONTROL
FADER
SERIAL DATA CONTROLLER FOR VOLUME & SWITCH
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
A GND
IN1-L
IN2-L
IN3-L
IN4-L
SW out-L
ZC in-L
LOUD-L
VR in-L
TREB-CNT-L
TREB-L-L
TREB-DIF-L
BASS-CNT-L
BASS-L-L
BASS-DIF-L
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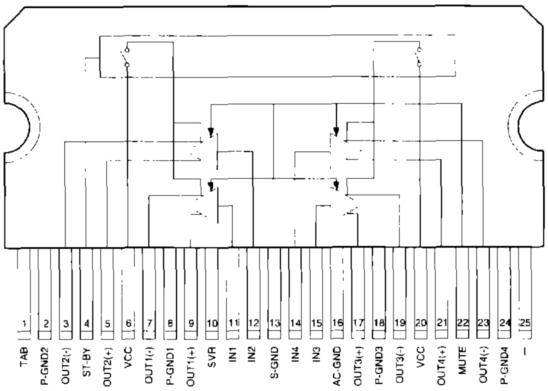
REAR out-L
Vref in
A GND
D GND
Ct
Vt in

TDA7386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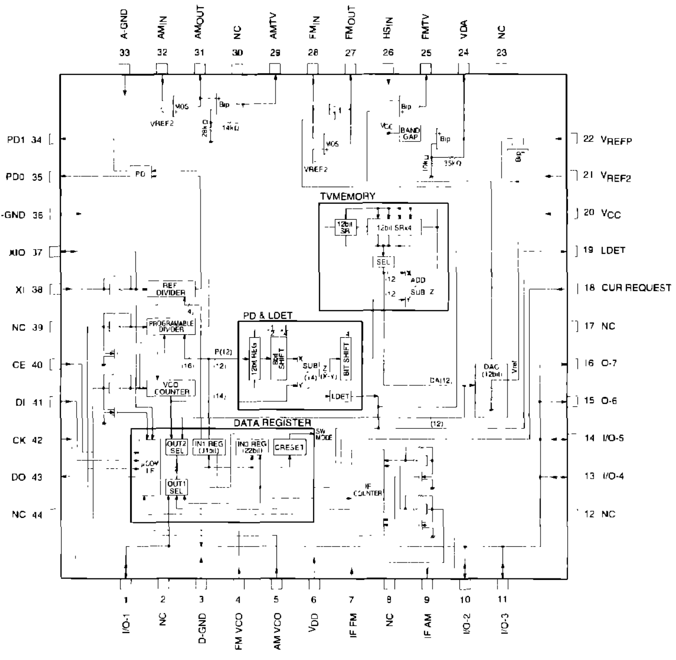
21
22
23
24
25
TAB
P-GND2
OUT2(-)
ST-BY
OUT2(+)
VCC
OUT1(-)
P-GND1
OUT1(+)
SVR
IN1
IN2
S-GND
IN4
IN3
AC-GND
OUT3(+)
P-GND3
OUT3(-)
VCC
OUT4(+)
MUTE
OUT4(-)
P-GND4

PM2005B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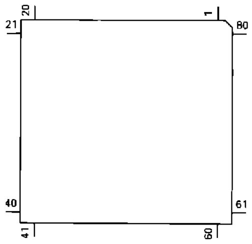
AMIN 32
AMOUT 31
NC 30
AMTV 29
FMIN 28
FMOUT 27
HSIN 26
FMTV 25
VDA 24
NC 23
PD1 34
PD0 35
X-GND 36
XIO 37
XI 38
NC 39
CE 40
DI 41
CK 42
DO 43
NC 44
22 VREFP
21 VREF2
20 VCC
19 LDET
18 CUR REQUEST
17 NC
16 O-7
15 O-6
14 I/O-5
13 I/O-4
12 NC
1 I/O-1
2 NC
3 D-GND
4 FM VCO
5 AM VCO
6 VDD
7 IF FM
8 NC
9 IF AM
10 I/O-2
11 I/O-3
TVMEMORY
REF DIVIDER
PROGRAMMABLE DIVIDER
VCO COUNTER
PD & LDET
DATA REGISTER
OUT2 SEL
IN1 REG
IN3 REG
CRESET
OUT1 SEL
IF COUNTER
BAND GAP
DAC
ADD
SUB
BIT SHIFT
LDET

● Pin Functions (PD4807B)

Pin No.	Pin Name	I/O	Format	Function and Operation
1	DSCSNS	I		Disc insertion detection input
2	ST	I		Stereo input
3	ISENS	I		Illumination sensor input
4	AVSS			Connect to GND.
5	VCAOUT	O		Analog output for SUBW electronic volume control
6	SD	I		SD signal input
7	AVREF1			Connect to VDD.
8	KYDT	I		Grille microprocessor communications data input
9	DPDT	O	C	Grille microprocessor communications data output
10	SWVDD	O	C	Grille power output
11	RIDDI	I		RDS/ID logic communications data input
12	RIDDO	O	C	RDS/ID logic communications data output
13	RIDCK	O	C	RDS/ID logic communications clock output
14	RIDRST	O	C	RDS/ID logic reset output
15	RIDSEL	O	C	RDS/ID logic select output
16	XSI	I		Serial data input to CD LSI
17	XSO	O	C	Serial data output to CD LSI
18	XSCK	O	C	Serial clock output to CD LSI
19	XSTB	O	C	CD LSI strobe output
20	CD5VON	O	C	CD (5 V) power control output
21	XAO	O	C	CD LSI command/data control output
22	XRST	O	C	CD LSI reset control output
23	CONT	O	C	Servo driver power control output
24	VDCONT	O	C	VD power control output
25	DIMMER	O	C	Dimmer control output
26	CDEJET	O	C	Load Motor Eject control output
27	CDLOAD	O	C	Load Motor Load control output
28	LOCK	I		Spindle lock detection input
29	FOK	I		Focus OK input
30	DRELAY	O	C	Output for external relay

Pin No.	Pin Name	I/O	Format	Function and Operation
31	DRSENS	I		Door open/closed sensor input
32	DRSYS	O	C	Door system change output
33	VSS			(GND)
34	$\overline{\mathrm{CLAMP}}$	I		Disc clamp
35	FIEOUT	O	C	FIE ON/OFF control output
36	SUBW0	O	N	Subwoofer cutoff frequency selection output 0
37	SUBW1	O	N	Subwoofer cutoff frequency selection output 1
38	$\overline{\mathrm{TMUTE}}$	O	N	Tuner mute output
39	$\overline{\mathrm{DLED}}$	O	N	LED output for alarm
40	MIRR	I		Mirror surface detection input
41	VST	O	C	Electronic VOL strobe output
42	VCK	O	C	Electronic VOL clock output
43	VDT	O	C	Electronic VOL data output
44	ILMPW	O	C	Illumination power output
45	PEE	O	C	PEE ON oscillation output
46	MUTE	O	C	General mute output
47	SYSPW	O	C	System power output
48	TUNPCK	O	C	PLL IC clock
49	TUNPDO	O	C	PLL IC data output
50	TUNPCE	O	C	PLL IC chip enable
51	TUNPDI	I		PLL IC data input
52	MODEL2	I		Destination selection 2
53	LCDPW	O	C	LCD backlight power output
54	FM	O	C	FM output
55	AM	O	C	AM output
56	SUBWMUTE	O	C	Subwoofer mute output
57	DLSENS	I		Centralized door lock release sensor input
58	STOUT	O	C	Output for starter motor cutoff
59	TUNANT	O	C	Tuner power output
60	$\overline{\mathrm{RESET}}$			Reset
61	RIDRDY	I		RDS/ID logic ready input
62	$\overline{\mathrm{BSENS}}$	I		Backup input
63	$\overline{\mathrm{ASENS}}$	I		ACC sensor input
64	$\overline{\mathrm{DSENS}}$	I		Detachment sensor input
65	MOSENS	I		Motion/window damage sensor input
66	CLKIN	I	C	8 Hz clock input for clock
67	CDPW	O	C	CD power control output
68	VDD			VDD
69	X2			Oscillator output
70	X1			Oscillator input
71	IC			Connect to GND.
72	XT2			Subclock terminal
73	TESTIN	I		Test mode
74	AVDD			Analog power supply of A/D convertor
75	AVREF0			Reference voltage input of A/D convertor
76	SL	I		Signal level input
77	MODEL1	I		Destination identification 1
78	VDSENS	I		VD power top/ground fault sensor input
79	TEMP	I		Temperature sensor input
80	EJTSNS	I		Disc Eject position detection input

*PD4807B

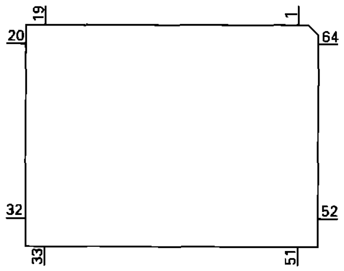


Format	Meaning
C	C MOS
N	N channel open drain

● Pin Functions (PD6215B)

Pin No.	Pin Name	I/O	Format	Function and Operation
1	$\overline{\text{TUNPCK}}$		N	PLL communications clock output
2	TUNPDO		N	PLL communications data output
3	TUNPDI			PLL communications data input
4	RDSSL			Signal level input
5	NL			Noise level input
6	MDSENS			Modulation detector input
7	SOUND			Detuning sensor composite signal input
8	$\overline{\text{RMUTE}}$	O	N	RDS mute output
9-11	NC			L output
12	AVCC			5V power supply input
13	AVR			5V power supply input
14	AVSS			Connect to GND
15	IRSEL			µ COM select input
16	$\overline{\text{RCK}}$			RDS recovery modulation clock input
17	RDT	I		RDS recovery modulation data input
18	$\overline{\text{LDET}}$			PLL lock detection input
19	$\overline{\text{RDSLK}}$	I		RDSLK signal input
20	$\overline{\text{IRRST}}$	I		µ COM reset input
21	MOD0			Connect to GND
22	MOD1			Connect to GND
23	XIN	I		Oscillator input
24	XOUT	O	C	Oscillator output
25	VSS			Connect to GND
26	$\overline{\text{DRST}}$	O	C	Decoder reset output
27	$\overline{\text{L}}$/S	O	C	Noise level sensitivity select output
28	$\overline{\text{CURRQ}}$	O	C	PLL-TV-Fix output
29	IRRDY	O	C	Communications ready output
30-32	A16-14	O	C	Not used
33-49	NC			Not used
50	VSS			Connect to GND
51	TEST	I		Test program input
52	$\overline{\text{IRCK}}$			Communications clock input
53	IRDO		C	Communications data output
54	IRDI			Communications data input
55	RDS57K			57kHz BP-OUT sense input
56	GD	O	C	Tuner unit gate drive control output
57	VCC			5V power supply input
58	SD	I		SD signal input
59	TUNPCE	O	C	PLL communications eneble output
60-64	NC			Not used

*PD6215B



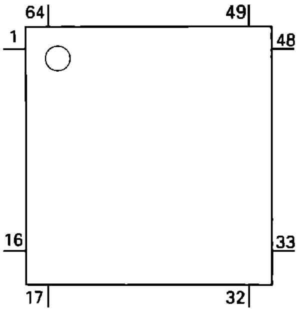
Format	Meaning
C	C MOS
N	N channel open drain

● Pin Functions (PD6196A)

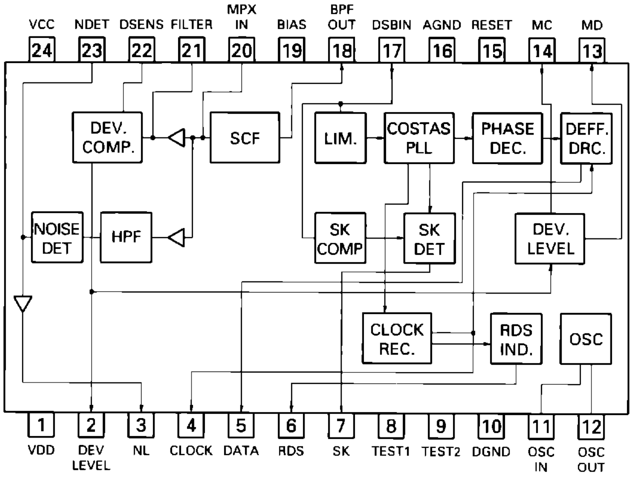
Pin No.	Pin Name	I/O	Format	Function and Operation
1-5	SEG4-0	O		LCD segment output
6-9	COM3-0	O		LCD common output
10	V3			LCD driver power supply
11-14	KS4-1	O	N	Key strobe output
15,16	KD1,2	I		Key data input
17	REM	I		Remote-control input
18	SI	I		UART input
19	$\overline{\text{RST}}$	I		System reset input
20	SO	O	C	UART output
21	MODA	I		Connect to VSS
22,23	X0,1			Connect to oscillator
24	VSS			GND
25,26	KD3,4	I		Key data input
27,28	KS6,5	O	N	Key strobe output
29-55	SEG39-13	O		LCD segment output
56	VCC	O		Power supply
57-64	SEG12-5	O		LCD segment output

Format	Meaning
C	C MOS
N	N channel open drain

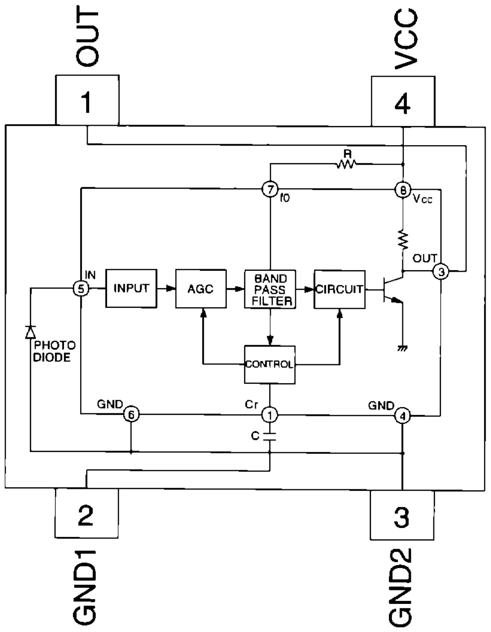
*PD6196A


64
49
1
48
16
33
17
32

*PMW001B


VCC
NDET
DSENS
FILTER
MPX IN
BIAS
BPF OUT
DSBIN
AGND
RESET
MC
MD
24
23
22
21
20
19
18
17
16
15
14
13
DEV. COMP.
SCF
LIM.
COSTAS PLL
PHASE DEC.
DEFF. DRC.
NOISE DET
HPF
SK COMP
SK DET
DEV. LEVEL
CLOCK REC.
RDS IND.
OSC
1
2
3
4
5
6
7
8
9
10
11
12
VDD
DEV LEVEL
NL
CLOCK
DATA
RDS
SK
TEST1
TEST2
DGND
OSC IN
OSC OUT

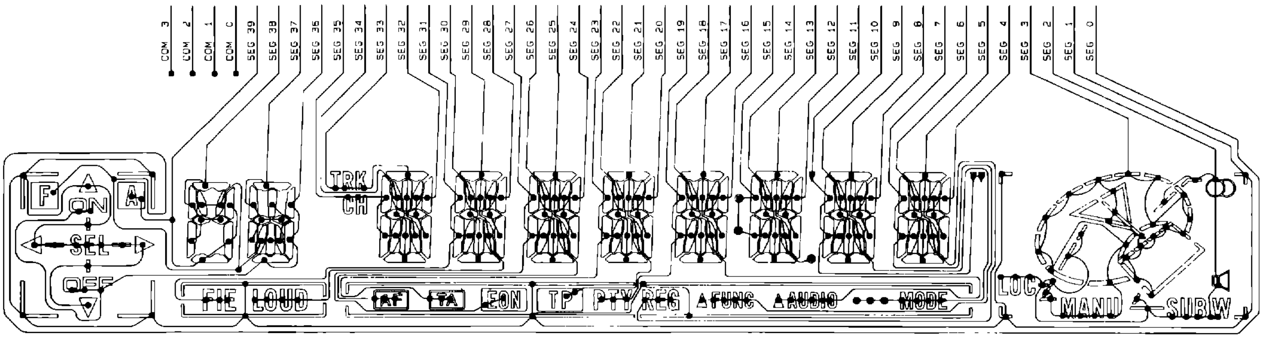
RS-140


OUT
VCC
1
4
R
7
f0
8
Vcc
OUT
3
IN
5
INPUT
AGC
BAND PASS FILTER
CIRCUIT
CONTROL
PHOTO DIODE
GND
6
Cr
1
C
GND
4
2
3
GND1
GND2

7.1.2 DISPLAY

- **CAW1392(DEH-635R/EW)**
- **CAW1432(DEH-535R/EW)**
- **CAW1433(DEH-534R/EW)**

SEGMENT


COM 3
COM 2
COM 1
COM 0
SEG 39
SEG 38
SEG 37
SEG 36
SEG 35
SEG 34
SEG 33
SEG 32
SEG 31
SEG 30
SEG 29
SEG 28
SEG 27
SEG 26
SEG 25
SEG 24
SEG 23
SEG 22
SEG 21
SEG 20
SEG 19
SEG 18
SEG 17
SEG 16
SEG 15
SEG 14
SEG 13
SEG 12
SEG 11
SEG 10
SEG 9
SEG 8
SEG 7
SEG 6
SEG 5
SEG 4
SEG 3
SEG 2
SEG 1
SEG 0
F
ON
A
SEL
OFF
TRK
CH
FIE
LOUD
AF
TA
EON
TP
PTY
REG
FUNC
AUDIO
MODE
LOC
MANU
SUB.W

COMMON

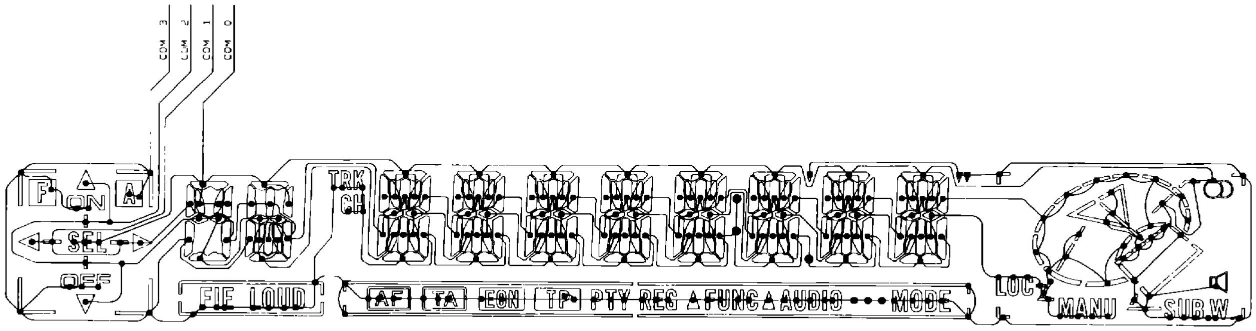

COM 3
COM 2
COM 1
COM 0
F
ON
A
SEL
OFF
TRK
CH
FIE
LOUD
AF
TA
EON
TP
PTY
REG
FUNC
AUDIO
MODE
LOC
MANU
SUB.W

Fig. 23

7.2 DIAGNOSIS

7.2.1 DISASSEMBLY

● Removing the Case(Not shown)

1. Remove the two screws.
2. Insert and turn a flat screwdriver at locations indicated by arrows to remove the case.

● Removing the Detach Grille Assy(Fig.24)

1. Press the detach button, and then pull Detach Grille Assy.

● Removing the Panel Assy(Fig.24)

1. Disconnect the two stoppers indicated by arrows, and then remove the Panel Assy.

● Removing the CD Mechanism Module(Fig.24)

1. Remove the four screws.
2. Disconnect the connector.
3. Remove the CD Mechanism Module.

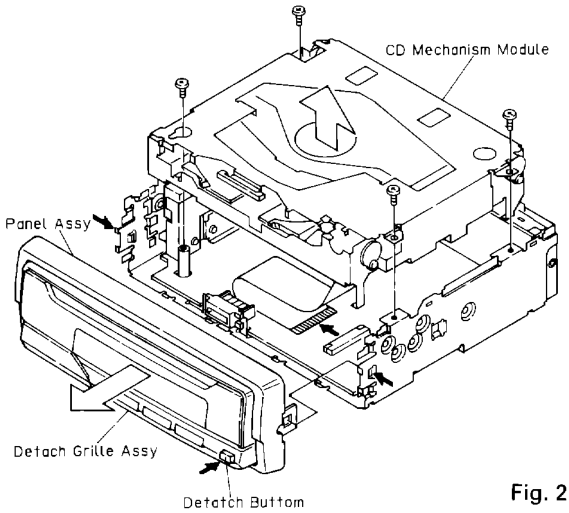

CD Mechanism Module
Panel Assy
Detach Grille Assy
Detatch Buttom

Fig. 24

● Removing the Chassis Unit(Fig.25)

1. Remove the two screws A, two screws B, screw C and screw D.
2. Stretch the three claws, and then remove the Chassis Unit.

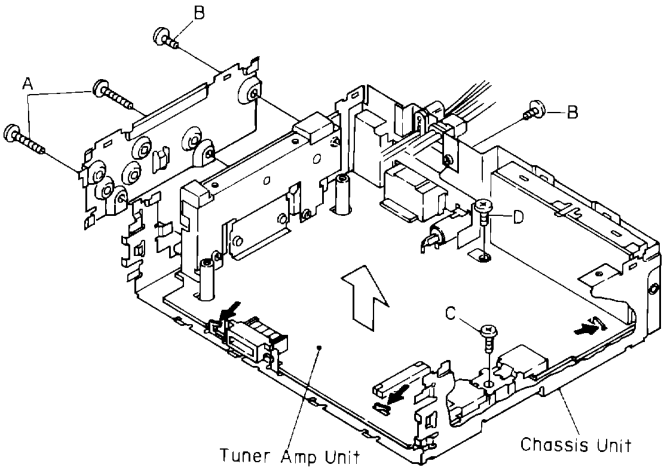

B
A
B
D
C
Tuner Amp Unit
Chassis Unit

Fig. 25

7.2.2 TEST MODE

● CD Test Mode

1)Precautions

- This unit uses a single power supply (+5V) for the regulator. The signal reference potential, therefore, is connected to REFO(approx. 2.5V) instead of GND.
  If REFO and GND are connected to each other by mistake during adjustments, not only will it be impossible to measure the potential correctly, but the servo will malfunction and a severe shock will be applied to the pick-up. To avoid this, take special note of the following.
  Do not connect the negative probe of the measuring equipment to REFO and GND together. It is especially important not to connect the channel 1 negative probe of the oscilloscope to REFO with the channel 2 negative probe connected to GND.
  Since the frame of the measuring instrument is usually at the same potential as the negative probe, change the frame of the measuring instrument to floating status.
  If by accident REFO comes in contact with GND, immediately switch the regulator or power OFF.

- Always make sure the regulator is OFF when connecting and disconnecting the various filters and wiring required for measurements.

- Before proceeding to further adjustments and measurements after switching regulator ON, let the player run for about one minute to allow the circuits to stabilize.

- Since the protective systems in the unit's software are rendered inoperative in test mode, be very careful to avoid mechanical and /or electrical shocks to the system when making adjustment.

- Test mode starting procedure
  Switch ACC, back-up ON while pressing the **4** and **6** keys together.

- Test mode cancellation
  Switch ACC, back-up OFF.

- Disc detection during loading and eject operations is performed by means of a photo transistor in this unit.Consequently, if the inside of the unit is exposed to a strong light source when the outer casing is removed for repairs or adjustment, the following malfunctions may occur.
  *During PLAY, even if the eject button is pressed,the disc will not be ejected and the unit will remain in the PLAY mode.
  *The unit will not load a disc.
  When the unit malfunctions this way, either re-position the light source, move the unit or cover the photo transistor.

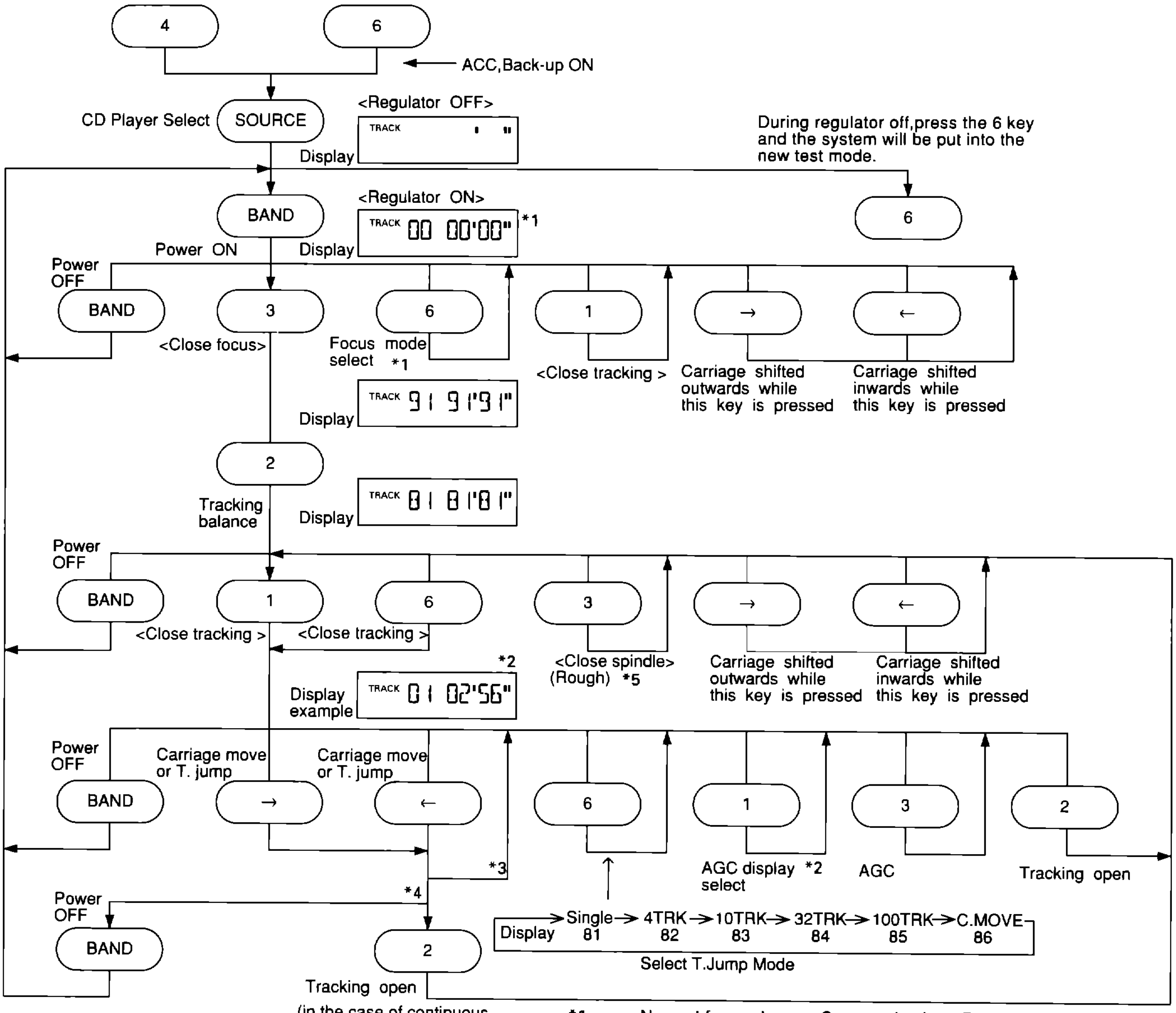
- When loading and unloading discs during adjustment procedures, always wait for the disc to be properly clamped or ejected before pressing another key. Otherwise, there is a risk of the actuator being destroyed.

- Turn power off when pressing the button → or the button ← key for focus search in the test mode. (Or else lens may stick and the actuator may be damaged.)

- SINGLE/4TRK/10TRK/32TRK will continue to operate even after the key is released.Tracking is closed the moment C-MOVE is released.

- JUMP MODE resets to SINGLE as soon as power is switched OFF.

● Flow Chart


4
6
ACC,Back-up ON
CD Player Select
SOURCE
<Regulator OFF>
TRACK
Display
During regulator off,press the 6 key and the system will be put into the new test mode.
BAND
<Regulator ON>
TRACK 00 00'00"
*1
Power ON
Display
6
Power OFF
BAND
3
6
1
→
←
<Close focus>
Focus mode select *1
<Close tracking >
Carriage shifted outwards while this key is pressed
Carriage shifted inwards while this key is pressed
TRACK 91 91'91"
Display
2
Tracking balance
TRACK 81 81'81"
Display
Power OFF
BAND
1
6
3
→
←
<Close tracking >
<Close tracking >
*2
<Close spindle> (Rough) *5
Carriage shifted outwards while this key is pressed
Carriage shifted inwards while this key is pressed
Display example
TRACK 01 02'56"
Power OFF
Carriage move or T. jump
Carriage move or T. jump
BAND
→
←
6
1
3
2
*3
AGC display *2 select
AGC
Tracking open
*4
Power OFF
Single→ 4TRK→10TRK→32TRK→100TRK→C.MOVE
Display 81 82 83 84 85 86
Select T.Jump Mode
BAND
2
Tracking open
(in the case of continuous jumping)

*1 Normal focus close → S curve check → Focus EQ check
00 01 02

*2 Normal display → Focus gain → Track gain

*3 100 TRK jump & carriage move continue only while the keys are pressed

*4 SINGLE/4/10/32 → continuous even after key release

*5 Normal display → Focus gain → Tracking offset → Tracking balance
(Close spindle-rough)

● Error Number Indication

If the CD should fail to operate or if an error has taken place during operation the player will enter into the error mode, and the cause of the error will be numerically indicated.

This is aimed at assisting in analysis or repair.

(1) Basic Means of Display

- With ERROR indicated in "MODE" on IP-BUS Display data, an error code is transmitted by the use of MIN and SEC. The MIN and SEC data will be identical.
- Examples of Display ERROR-XX

(2) Error Codes

Error Code	Classification	Description	Cause/Detail
10	ELECTRIC	Carriage home failure	Carriage doesn't move to or from the innermost position →Home switch failed and/or carriage immobile
11	ELECTRIC	Focus failure	Focus failed →Defects, disc upside-down, severe vibration
12	ELECTRIC	SETUP failure Subcode failure	Spindle failed to lock or subcode unreadable →Spindle defective, defect, severe vibration
14	ELECTRIC	Mirror failure	Unrecorded CD-R The disc is upside-down, defects, vibration
17	ELECTRIC	Set up failure	AGC protect failed →Defects, disc upside-down, severe vibration
19	ELECTRIC	Set up failure	Tracking error waveform is too unbalanced (>50%) or level is too small →The P.U.unit or tracking error circuitry is N.G.
30	ELECTRIC	Search time out	Failed to reach target address →Carriage/tracking defective and/or defects
A0	SYSTEM	Power failure	Power overvoltage or short circuit detected →Switching transistor defective and/or power abnormal

"defects" means scratches, dirt etc an the surface of the disc.

● New Test Mode(aging operation and setup analysis)

The single CD player plays in normal mode. After being set up, it will display FOK (focus), LOCK (spindle), subcode, sound skip, protection against a mechanical error or the like, occurrence of an error, cause and time of an expiry, if any, (and disc number).

During the setup, the CD software operation status (internal RAM and C-point)is displayed.

(1) How to enter NEW TEST Mode

See the test mode flow chart Page 65.

(2) Relations of keys between TEST and NEW TEST Modes

Keys	Test Mode		New Test Mode	
	Regulator OFF	Regulator ON	PLAY in progress	Error Occurred, Protection Activated
BAND	Regulator ON	Regulator OFF	—	Time of occurrence / cause of error select
→	—	FWD-KICK	TRACK+ / FF	—
←	—	REV-KICK	TRACK- / REV	—
1	—	TRACKING CLOSE	SCAN	—
2	—	TRACKING OPEN	REPEAT	—
3	—	FOCUS CLOSE	RANDOM	—
6	To New Test Mode Select	FOCUS MODE	AUTO/MANU	—

Operations, such as EJECT, CD ON/OFF, etc. are performed normally.

(3) Error Cause (Error Number) Code

Error Code	Classification	Mode	Description	Cause	Detail
40	ELECTRIC	PLAY	FOK=L 100ms	Put out of focus	Scratch, Stain, Vibration, Servo defect, etc...
41	ELECTRIC	PLAY	LOCK=L 100ms	Spindle unlock	
42	ELECTRIC	PLAY	Subcode unacceptable 500ms	Failed to read subcode	
43	ELECTRIC	PLAY	Sound skipped	Last address memory operated	

(4) Indicating an Operation Status During Setup

Status No.	Description	Protection operation
01	Carriage home mode started	None
02	Carriage moving inwards	10-second time out, Home switch failed
03	Carriage moving outwards	10-second time out, Home switch failed
05	Carriage moving outwards	None
11	Setup started	None
12	Spindle turn/Focus search started	None
13	Waiting for focus closure (XSI=L)	Failure to close focus
10,14	Waiting for focus closure (FOK=H)	Failure to close focus
15, 16, 17	Focus closed, Tracking open	Focus disrupted
18	During focus AGC Subcode waiting	Focus disrupted
19	During tracking AGC	Disrupted focus
20	Waiting for MIRR, LOCK or subcode read Carriage closed, SPINDLE=ADAPTIVE	Focus disrupted, MIRR NG, Failure to lock, Failed to read subcode

(5) Example of Display.

- SET UP in progress

TNo	Min	Sec
91	91	91

- Operation (PLAY, SEARCH, etc.) in progress perfectly identical with that in the normal mode.

- Protection/Error upon occurrence

(a) Error number indicated

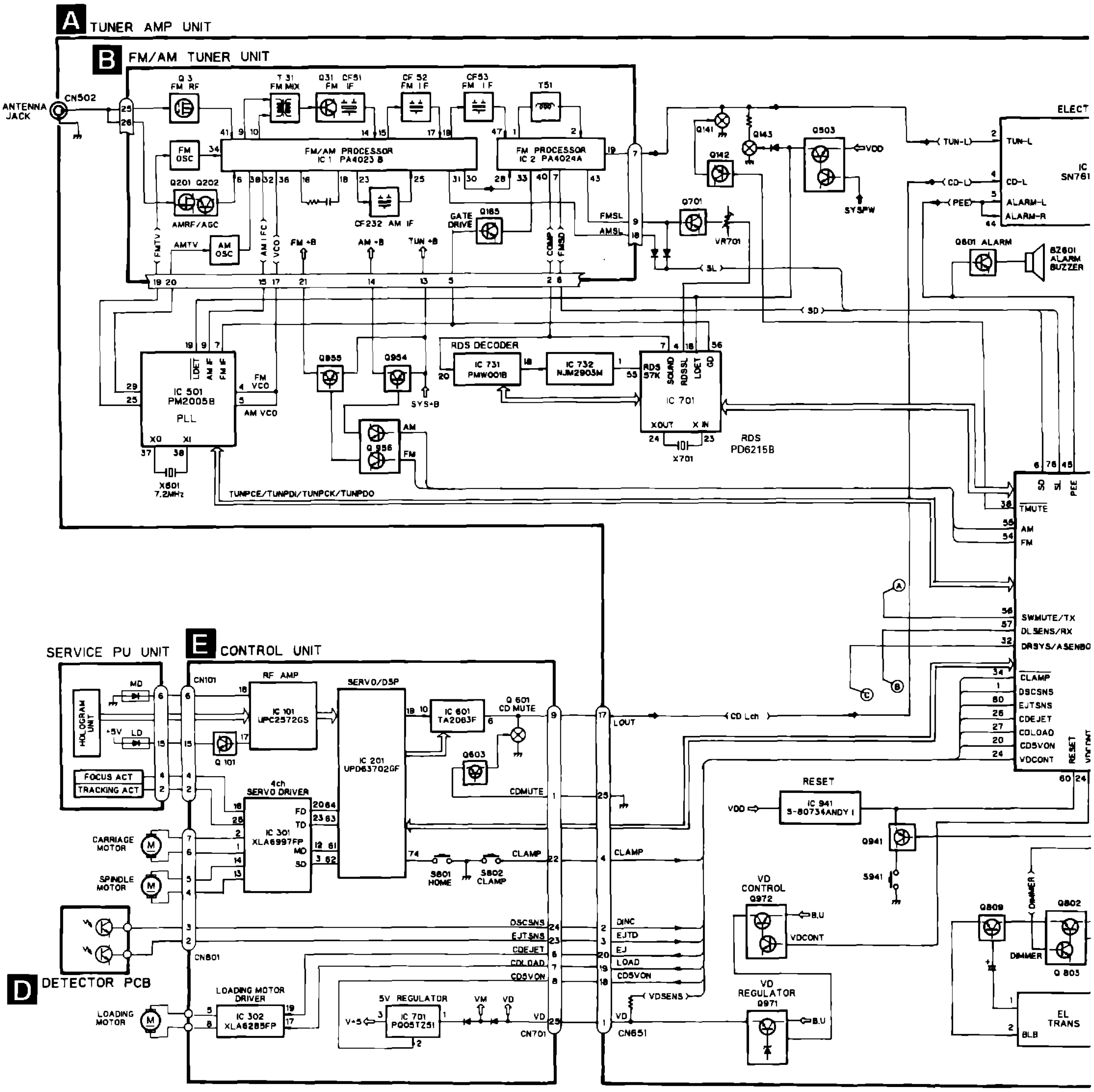
ERROR-xx

Select the display with the BAND key.

(b) Track number and absolute time indicated

TNo.	Min	Sec
10	40	05

7.3 BLOCK DIAGRAM


A TUNER AMP UNIT
B FM/AM TUNER UNIT
ANTENNA JACK
CN502
Q 3 FM RF
T 31 FM MIX
Q31 CF51 FM IF
CF 52 FM IF
CF53 FM IF
T51
FM OSC
FM/AM PROCESSOR IC 1 PA4023 B
FM PROCESSOR IC 2 PA4024A
Q201 Q202
AMRF/AGC
CF232 AM IF
GATE DRIVE
Q185
FMSL
AMSL
AMTV
AM OSC
FMTV
AM IFC
VCO
FM +B
AM +B
TUN +B
COMP
FMSD
Q141
Q143
Q142
Q503
VDD
SYSPW
Q701
VR701
SL
SD
ELECT
TUN-L
CD-L
PEE
ALARM-L
ALARM-R
IC SN761
Q601 ALARM
BZ601 ALARM BUZZER
IC 501 PM2005B PLL
LDET
AM IF
FM IF
FM VCO
AM VCO
XO XI
X601 7.2MHz
Q955
Q954
SYS+B
Q956
AM
FM
RDS DECODER
IC 731 PMW001B
IC 732 NJM2903M
RDS 57K
SOUND
RDSSL
LDET
GO
IC 701
XOUT X IN
X701
RDS PD6215B
TUNPCE/TUNPDI/TUNPCK/TUNPDO
SD SL PEE
TMUTE
AM
FM
SWMUTE/TX
DLSENS/RX
DRSYS/ASENBO
CLAMP
DSCSNS
EJTSNS
CDEJET
CDLOAD
CD5VON
VDCONT
RESET
SERVICE PU UNIT
HOLOGRAM UNIT
MD
+5V LD
FOCUS ACT
TRACKING ACT
E CONTROL UNIT
CN101
RF AMP
IC 101 UPC2572GS
Q 101
SERVO/DSP
IC 201 UPD63702GF
IC 601 TA2063F
Q 601 CD MUTE
Q603
CDMUTE
4ch SERVO DRIVER
IC 301 XLA6997FP
FD TD MD SD
CARRIAGE MOTOR
SPINDLE MOTOR
S801 HOME
S802 CLAMP
CLAMP
DSCSNS
EJTSNS
CDEJET
CDLOAD
CD5VON
CN801
D DETECTOR PCB
LOADING MOTOR
LOADING MOTOR DRIVER
IC 302 XLA6285FP
5V REGULATOR
IC 701 PQ05TZ51
V+5
VM VD
CN701
LOUT
CD Lch
DINC
EJTD
EJ
LOAD
CD5VON
VDSENS
VD
CN651
RESET
IC 941 S-80734ANDY I
Q941
S941
VD CONTROL Q972
B.U
VDCONT
VD REGULATOR Q971
Q809
DIMMER
Q802
Q 803
EL TRANS
BLB

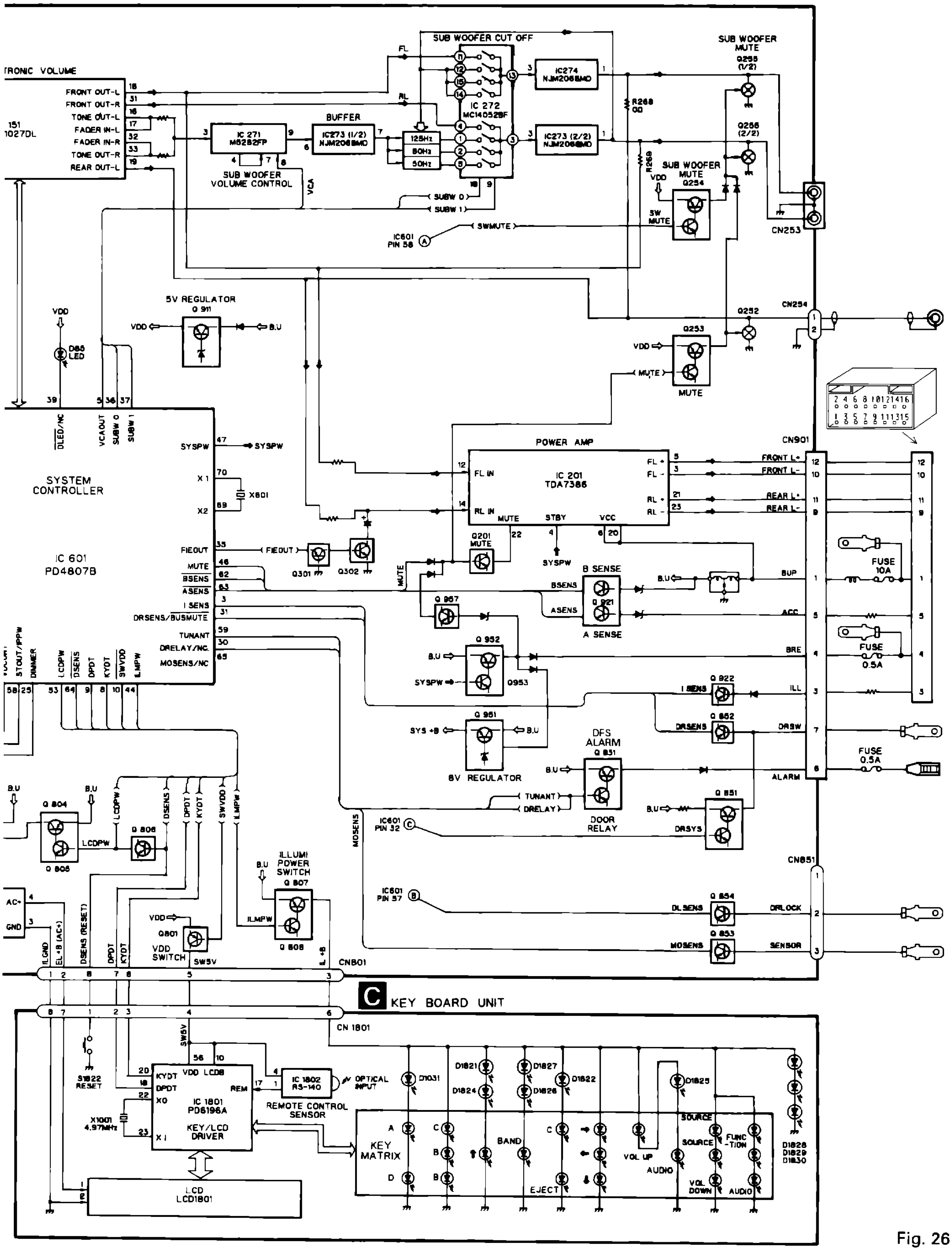
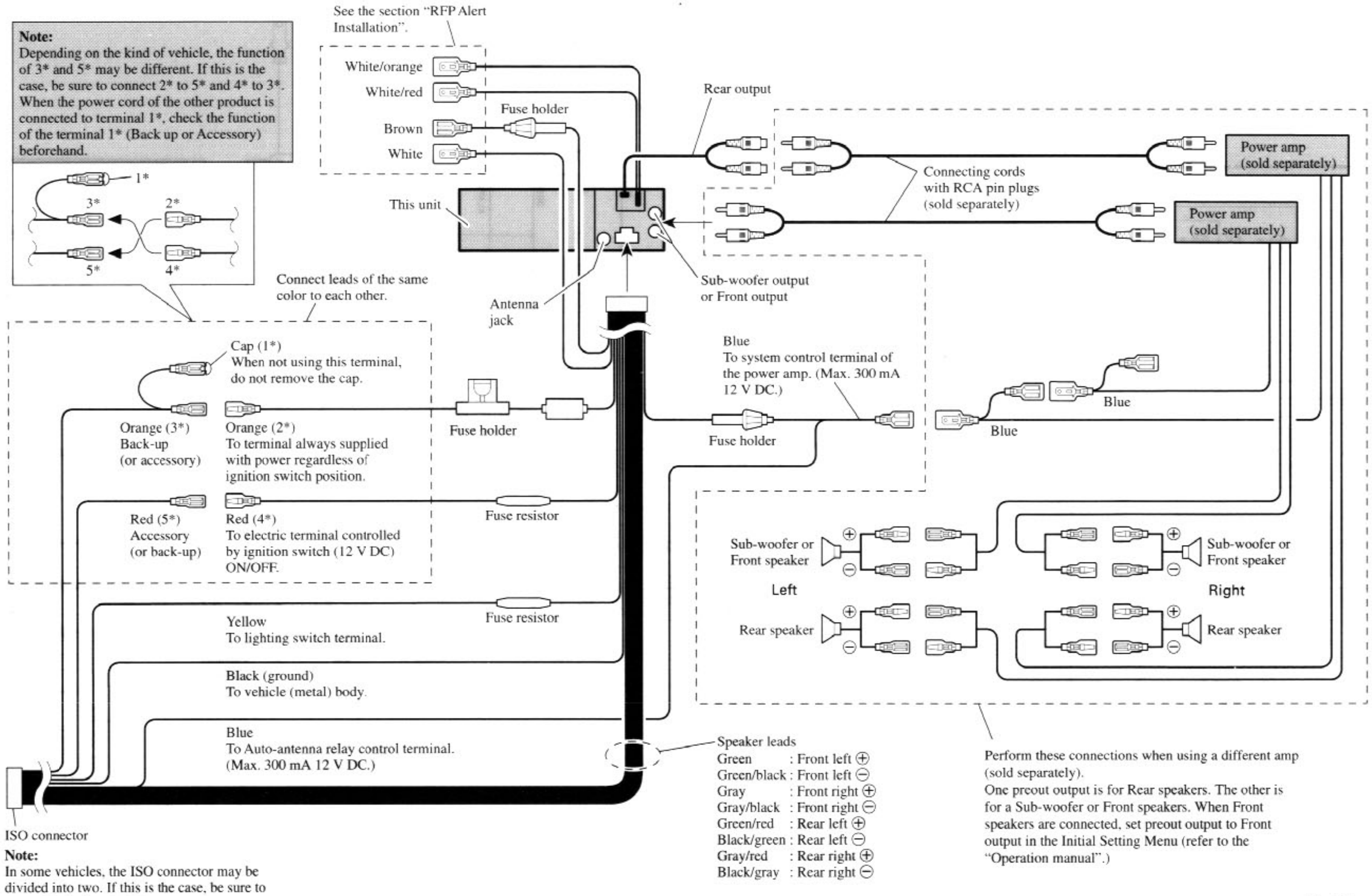

SUB WOOFER CUT OFF
SUB WOOFER MUTE
Q255 (1/2)
Q255 (2/2)
TRONIC VOLUME
FRONT OUT-L
FRONT OUT-R
TONE OUT-L
FADER IN-L
FADER IN-R
TONE OUT-R
REAR OUT-L
151
1027DL
BUFFER
IC 271
M6282FP
IC273 (1/2)
NJM2068MD
125Hz
80Hz
50Hz
IC 272
MC14052BF
IC274
NJM2068MD
IC273 (2/2)
NJM2068MD
R268
00
R269
SUB WOOFER VOLUME CONTROL
VCA
SUB WOOFER MUTE
Q254
SW MUTE
SUBW 0
SUBW 1
SWMUTE
IC601 PIN 58
CN253
5V REGULATOR
Q 911
VDD
B.U
D85 LED
Q252
CN254
Q253
MUTE
DLED/NC
VCAOUT
SUBW 0
SUBW 1
SYSPW
X 1
X 2
X801
SYSTEM CONTROLLER
IC 601
PD4807B
FIEOUT
MUTE
BSENS
ASENS
I SENS
DRSENS/BUSMUTE
TUNANT
DRELAY/NC
MOSENS/NC
STOUT/PPW
DIMMER
LCDPW
DSENS
DPDT
KYDT
SWVDD
ILMPW
POWER AMP
IC 201
TDA7386
FL IN
RL IN
MUTE
STBY
VCC
FL +
FL -
RL +
RL -
CN901
FRONT L+
FRONT L-
REAR L+
REAR L-
Q301
Q302
Q201 MUTE
B SENSE
Q 921
A SENSE
BUP
ACC
FUSE 10A
Q 957
Q 952
Q953
BRE
FUSE 0.5A
Q 922
ILL
Q 952
DRSW
Q 951
SYS +B
8V REGULATOR
DFS ALARM
Q 831
ALARM
FUSE 0.5A
TUNANT
DRELAY
DOOR RELAY
Q 851
DRSYS
IC601 PIN 32
MOSENS
CN851
IC601 PIN 57
Q 854
DLSENS
DRLOCK
Q 853
MOSENS
SENSOR
Q 804
Q 806
Q 805
AC+
GND
ILLUMI POWER SWITCH
Q 807
Q 808
Q801
VDD SWITCH
SW5V
ILGND
EL+B (AC+)
DSENS (RESET)
IL +B
CN801
C KEY BOARD UNIT
CN 1801
S1822 RESET
X1001 4.97MHz
IC 1801
PD6196A
KEY/LCD DRIVER
KYDT
DPDT
XO
XI
VDD
LCD8
REM
IC 1802
RS-140
OPTICAL INPUT
REMOTE CONTROL SENSOR
LCD
LCD1801
KEY MATRIX
D1031
D1821
D1824
D1827
D1826
D1822
D1825
D1828
D1829
D1830
BAND
EJECT
VOL UP
AUDIO
SOURCE
FUNC -TION
VOL DOWN
AUDIO

Fig. 26

8. OPERATIONS AND SPECIFICATIONS


See the section "RFP Alert Installation".
White/orange
White/red
Brown
White
Fuse holder
This unit
Rear output
Connecting cords with RCA pin plugs (sold separately)
Power amp (sold separately)
Power amp (sold separately)
Sub-woofer output or Front output
Antenna jack
1*
2*
3*
4*
5*
Connect leads of the same color to each other.
Cap (1*)
Orange (3*)
Back-up
(or accessory)
Orange (2*)
Red (5*)
Accessory
(or back-up)
Red (4*)
Fuse holder
Fuse resistor
Fuse resistor
Blue
Fuse holder
Blue
Blue
Sub-woofer or Front speaker
Left
Rear speaker
Sub-woofer or Front speaker
Right
Rear speaker
ISO connector
Speaker leads

Note:
Depending on the kind of vehicle, the function of 3* and 5* may be different. If this is the case, be sure to connect 2* to 5* and 4* to 3*. When the power cord of the other product is connected to terminal 1*, check the function of the terminal 1* (Back up or Accessory) beforehand.

Cap (1*)
When not using this terminal, do not remove the cap.

Orange (2*)
To terminal always supplied with power regardless of ignition switch position.

Red (4*)
To electric terminal controlled by ignition switch (12 V DC) ON/OFF.

Yellow
To lighting switch terminal.

Black (ground)
To vehicle (metal) body.

Blue
To Auto-antenna relay control terminal. (Max. 300 mA 12 V DC.)

Blue
To system control terminal of the power amp. (Max. 300 mA 12 V DC.)

Speaker leads

Green	: Front left ⊕
Green/black	: Front left ⊖
Gray	: Front right ⊕
Gray/black	: Front right ⊖
Green/red	: Rear left ⊕
Black/green	: Rear left ⊖
Gray/red	: Rear right ⊕
Black/gray	: Rear right ⊖

Perform these connections when using a different amp (sold separately).
One preout output is for Rear speakers. The other is for a Sub-woofer or Front speakers. When Front speakers are connected, set preout output to Front output in the Initial Setting Menu (refer to the "Operation manual".)

ISO connector
Note:
In some vehicles, the ISO connector may be divided into two. If this is the case, be sure to connect to both connectors.

Fig. 27

RFP Alert Installation

⚠ CAUTION

- Because of the complexity of today's technically advanced vehicle wiring systems, we recommend that your RFP Alert be installed ONLY by a professional Pioneer installer.

Affix the included deterrent stickers to the inside of the front door windows.

Description

- **White (DOOR SWITCH)** .... **(Fig. 28 & 29)**
  This lead is used to trigger RFP Alert when any door is opened and may be connected to either positive or negative (+/–) type door pin switches.

- **Brown (ALARM OUTPUT)** .... **(Fig. 30)**
  This lead is a selectable constant or pulsed positive (+) output capable of driving up to 2 relays (500 mA) max. Use this lead to trigger relays for siren, horn, honk or flashing lights.

- **White/Red (ALARM SENSOR)** .... **(Fig. 31)**
  This lead is a negative (–) input and is provided for hookup of negative triggering sensors such as shock, or glass sensors (sold separately).

- **White/Orange (DOOR LOCK)** .... **(Fig. 32)**
  This lead is used to disarm RFP Alert from power door lock systems or alert systems with remote unlock. This lead may be connected to door lock systems with either positive or negative (+/–) unlock triggers.

Door Switches

The RFP Alert's door trigger input is designed to work with either positive or negative door pin switches. After hookup, simply set door system type from RFP Alert Setting Menu.
Domelight Delay-RFP Alert will wait for last door to close and courtesy light to turn off before Exit Delay Timer Starts.

DOOR SWITCH (White)

- **Grounding Type Switch:**
  Most European, Japanese, GM and Chrysler vehicles.

Note:

- Set RFP Alert to recognize ground trigger from RFP Alert Setting Menu. Set Door System to "DR-L :CLS".

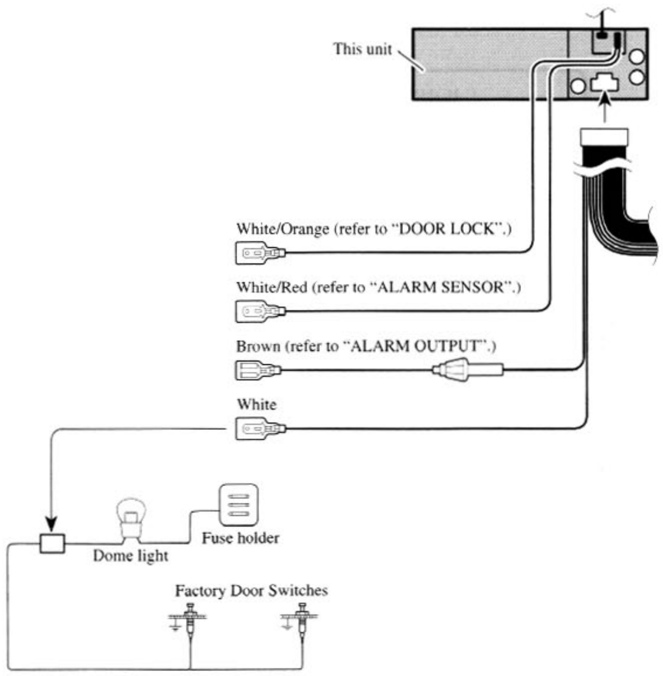

This unit
White/Orange (refer to "DOOR LOCK".)
White/Red (refer to "ALARM SENSOR".)
Brown (refer to "ALARM OUTPUT".)
White
Fuse holder
Dome light
Factory Door Switches

Fig. 28

■ Positive (Non-grounding) Type Switch:

Jaguar, Mercedes, Ford

Note:
- Set RFP Alert to recognize positive trigger from RFP Alert Setting Menu. Set Door System to "DR-H :CLS".

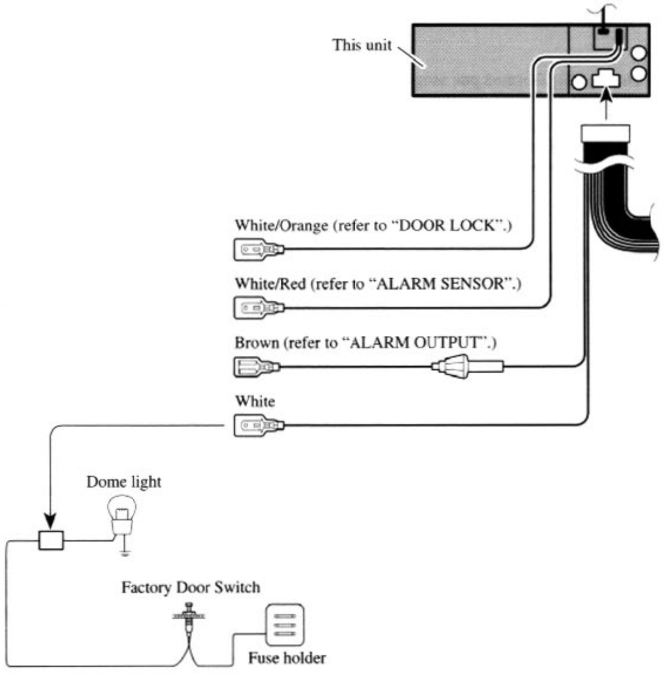

This unit
White/Orange (refer to "DOOR LOCK".)
White/Red (refer to "ALARM SENSOR".)
Brown (refer to "ALARM OUTPUT".)
White
Dome light
Factory Door Switch
Fuse holder

Fig. 29

■ Installing New Pin Switches

Separately sold pin switches are available that can be used to protect your vehicle's trunk, hood etc. When you purchase these, make sure that you first confirm that they can be used with your vehicle's door system type.
Follow the makers instructions as to installation and wiring.

ALARM OUTPUT (Brown)

The brown lead provides a +12 V, constant or pulsed output while alert is sounding. This lead has a maximum current capability of 500 mA and can be used to trigger a relay to sound a siren, horn or flash lights.

■ Recommended Wiring:

30 amp relay (sold separately) required to operate siren, horn or lights.
- Connect Brown wire to one side of relay coil.
- Connect ground to other side of coil.

For sirens, horns or lights requiring +12 V trigger
- Connect normally open to fused, constant +12 V source.

For horns or lights requiring ground trigger
- Connect normally open pin to ground.

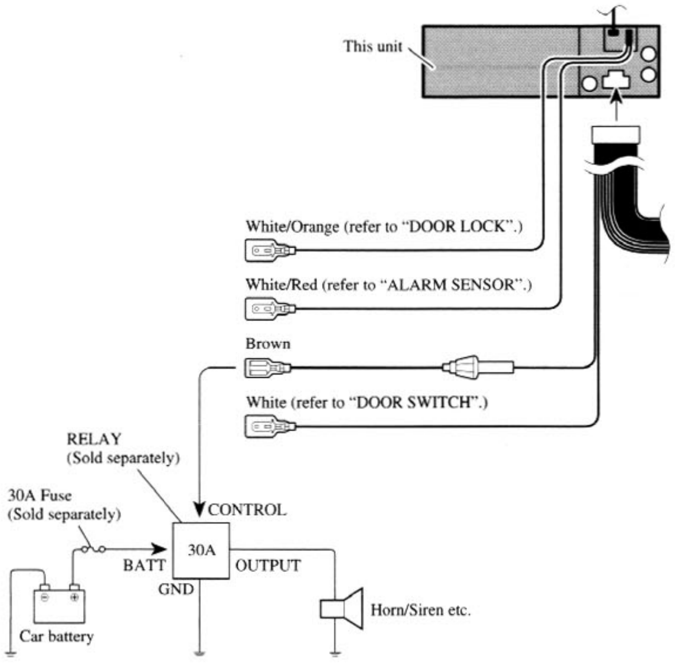

This unit
White/Orange (refer to "DOOR LOCK".)
White/Red (refer to "ALARM SENSOR".)
Brown
White (refer to "DOOR SWITCH".)
RELAY
(Sold separately)
30A Fuse
(Sold separately)
CONTROL
30A
BATT
OUTPUT
GND
Car battery
Horn/Siren etc.

Fig. 30

ALARM SENSOR (White/Red)

The white/red lead is a negative triggered (Grounding) input that can be connected to various separately sold shock or glass sensors. There is no limit as to how many sensors are connected, so you can ensure total protection of your vehicle. Follow the makers instructions as to installation and wiring.

Note:
- If the shock sensor detects vehicle vibrations, use the negative (–) output type. If you use the positive (+) output type, the alert will sound continually, and the shock sensor will not operate correctly.

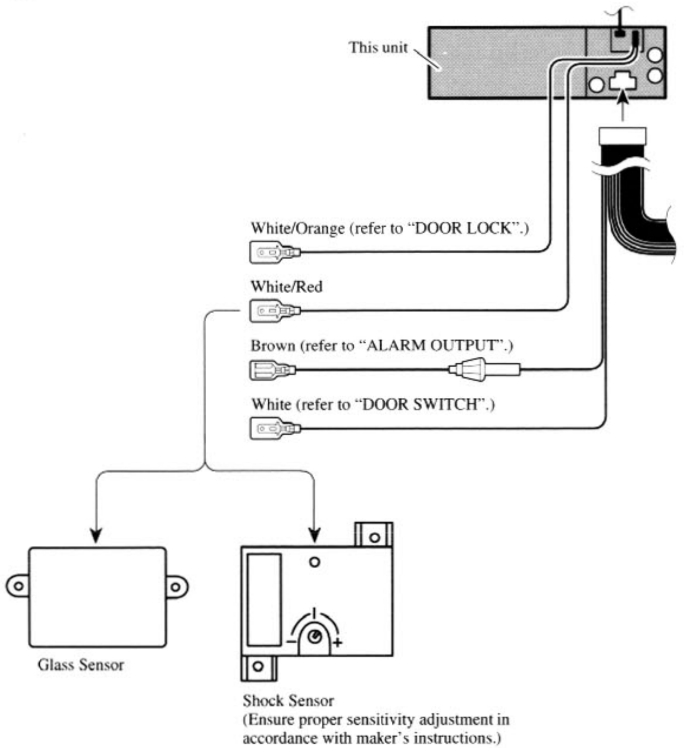

This unit
White/Orange (refer to "DOOR LOCK".)
White/Red
Brown (refer to "ALARM OUTPUT".)
White (refer to "DOOR SWITCH".)
Glass Sensor
Shock Sensor
(Ensure proper sensitivity adjustment in accordance with maker's instructions.)

Fig. 31

DOOR LOCK (White/Orange)

The white/orange lead should be connected to the "unlock" lead for your vehicles door locking system, so that when you open the driver's door by your vehicle's remote control, your Pioneer RFP Alert is deactivated.

First, locate the two wires from the lock/unlock switch that operate the factory door lock solenoids for the driver's side. Using a meter, determine which lead is used to unlock the door; connect this to the white/orange lead of your Pioneer Car Stereo. In the RFP Alert Setting Menu, select the door-lock system type according to your vehicle (grounding or non-grounding).

If you have difficulty wiring this connection, please consult your nearest Installation specialist.

Note:
- If your vehicle is equipped with a central door lock but the glass or shock sensor is not connected, if the window is broken and the central door lock is released, this unit's RFP Alert will not operate.
- Pioneer recommends that both a shock sensor and glass sensor be installed when you are using the "Remote Disarming" feature.

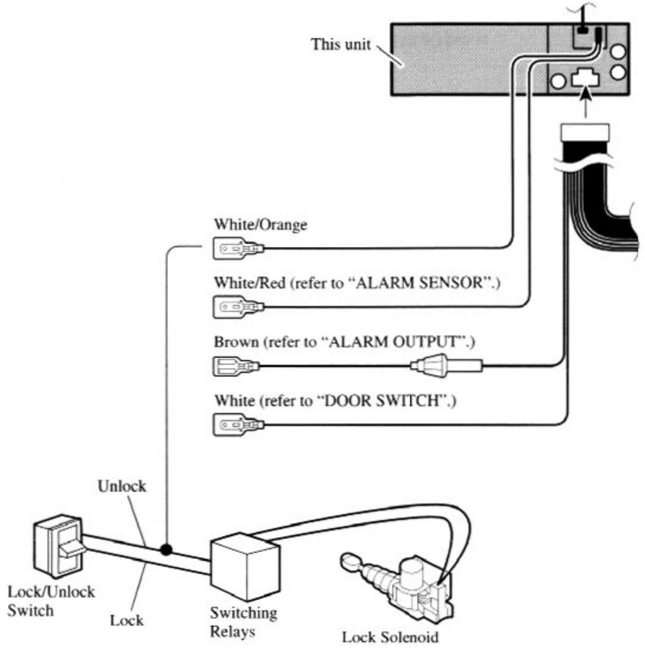

This unit
White/Orange
White/Red (refer to "ALARM SENSOR".)
Brown (refer to "ALARM OUTPUT".)
White (refer to "DOOR SWITCH".)
Unlock
Lock/Unlock Switch
Lock
Switching Relays
Lock Solenoid

Fig. 32

Key Finder

■ Head Unit

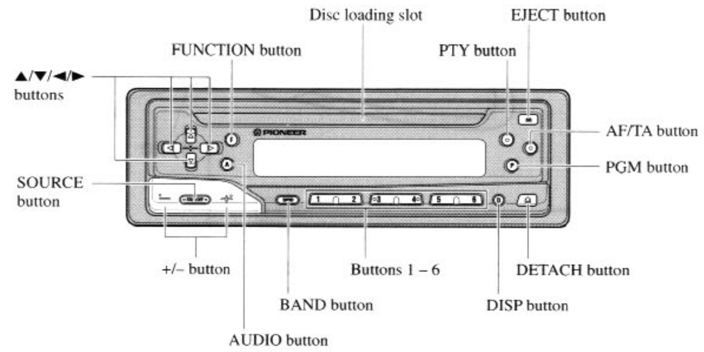

Disc loading slot
EJECT button
FUNCTION button
PTY button
▲/▼/◄/► buttons
AF/TA button
PGM button
SOURCE button
+/– button
Buttons 1 – 6
DETACH button
BAND button
DISP button
AUDIO button

Fig. 33

■ Remote Controller

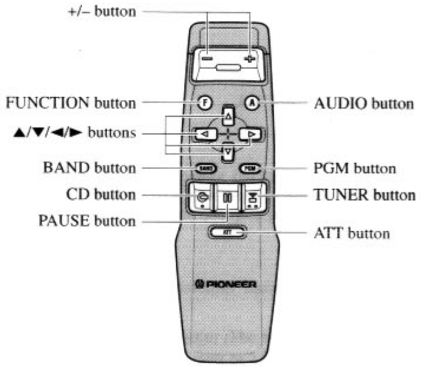
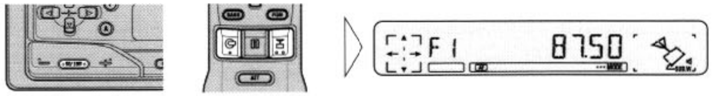

+/– button
FUNCTION button
AUDIO button
▲/▼/◄/► buttons
BAND button
PGM button
CD button
TUNER button
PAUSE button
ATT button

Fig. 34

Basic Operation

Switching Power ON/OFF

- **Select the desired source (such as the tuner).**



■ Head Unit

Each press of the SOURCE button selects the desired source in the following order:
Built-in CD player → Tuner

To switch the sources OFF, hold down the SOURCE button for 1 second or more.

■ Remote Controller

Each press of the CD button selects the desired source in the following order:
Built-in CD player → Sources OFF

Each press of the TUNER button selects the desired source in the following order:
Tuner → Sources OFF

Note:
- The sound source will not change if no disc is set in this unit.

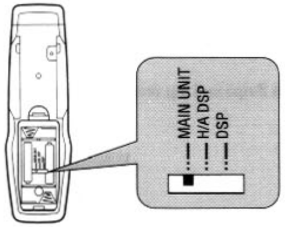
Remote Controller and Care

Using the Remote Controller

This product is equipped with a remote controller for convenient operation.

- Point the controller in the direction of the front panel to operate.
- When the controller is not in use, attach it firmly to the provided mounting base.

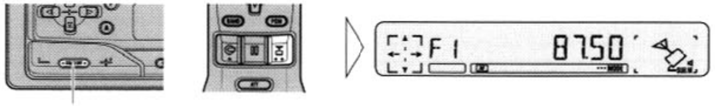
Precaution:
- Do not store the remote controller in high temperatures or direct sunlight.
- The controller may not function properly in direct sunlight.
- Do not let the remote controller fall onto the floor, where it may become jammed under the brake or accelerator pedal.
- Open the cover on the rear of the remote control, and you'll find a switch. Do not change this switch's position from the MAIN UNIT position. (Initially, the switch is set to the MAIN UNIT position.) If you change the switch setting, correct operation of this unit will not be possible.



Tuner Operation

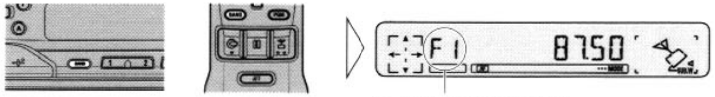
Basic Operation of Tuner

1. **Select Tuner.**



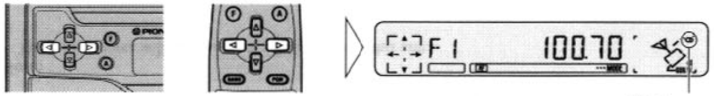
Each press changes the source ...

2. **Select the desired band.**



F1 → F2 → F3 → MW/LW

3. **Tune the receiver to a higher or lower frequency.**



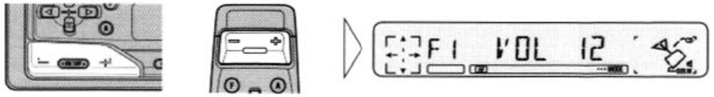
“⚭” stereo

This product’s tuner lets you select the tuning by changing the length of the time you press the button.

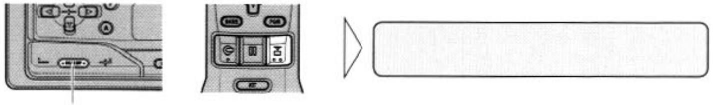
Manual Tuning (step by step)	0.3 seconds or less
Seek Tuning (automatically)	0.3 – 2 seconds
Manual Tuning (continuously)	2 seconds or more

Note:
- “⚭” stereo indicator lights when a stereo station is selected.

4. **Raise or lower the volume.**



5. **Turn the source OFF.**

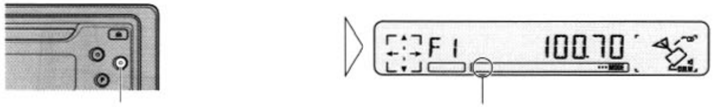


Hold for 1 second

AF Function Switching

This product’s AF function can be switched ON and OFF. AF should be switched OFF for normal tuning operations.

- **Switch AF OFF.**



Hold for 2 seconds

“AF” disappears

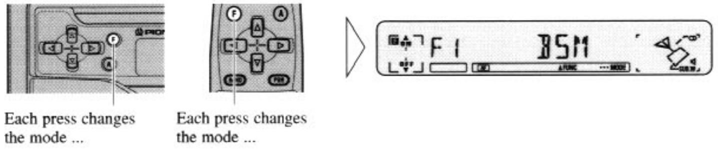
To switch AF ON, repeat the preceding operation.

Note:
- You can also switch the AF function ON/OFF in the Function Menu.

Entering the Function Menu

In this menu you can select tuner functions.

- **Select the desired mode in Function Menu.**


Each press changes the mode ...
Each press changes the mode ...
F1
BSM

Each press of the FUNCTION button selects the mode in the following order:
BSM → REG → LOC → TA → PTY SEL → AF

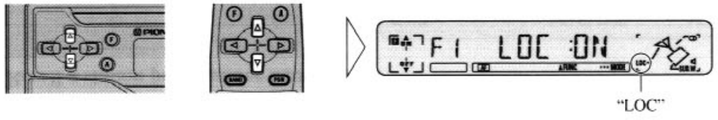
To cancel the Function Menu, press the BAND button.

Note:
- **REG, TA, PTY SEL, and AF are RDS functions. Refer to "Using RDS Functions" for details and instructions on how to use these functions.**
- After entering the Function Menu, if you do not perform an operation within about 30 seconds, the Function Menu is automatically canceled.

Local Seek Tuning

This mode selects only stations with especially strong signals.

1. **Select the Local mode (LOC) in the Function Menu.**
2. **Switch the Local mode ON or OFF.**



To cancel the Function Menu, press the BAND button.

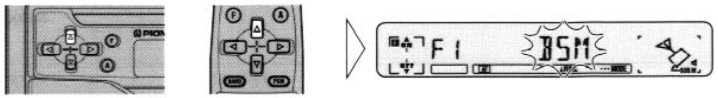
Preset Tuning

Up to 18 FM stations (6 in F1 (FM1), F2 (FM2) and F3 (FM3)) and 6 MW/LW stations can be stored in memory.
Store the stations in memory under buttons 1 – 6 beforehand with the BSM (Best Stations Memory) or Preset Memory function.

BSM (Best Stations Memory)

The BSM function stores stations in memory automatically.

1. **Select the BSM mode (BSM) in the Function Menu.**
2. **Switch the BSM mode ON.**



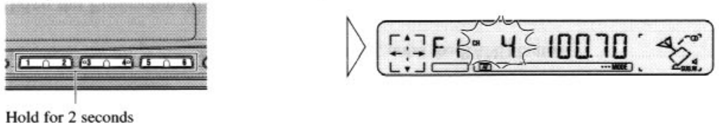
The stations with the strongest signals will be stored under buttons 1 – 6 and in order of their signal strength.

To cancel the Function Menu, press the BAND button.

Preset Memory

The Preset Memory function stores stations in memory manually.

1. **Select the station whose frequency you want to store in memory.**
2. **Press one of buttons 1 – 6 for 2 seconds or longer to store the desired stations. (eg. Press button 4.)**



The station is stored in memory under the selected button.

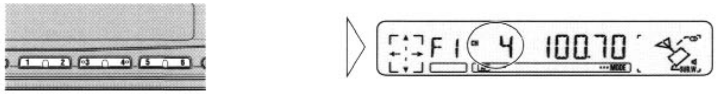
Tuner Operation

Recalling Preset Stations

There are two ways to recall preset stations.

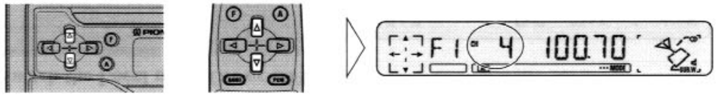
■ **Direct Recall**

- **Press one of buttons 1 – 6 to recall a station preset under that button. (eg. Press button 4.)**



■ **Sequential Recall**

- **Recall a station preset under button 1 – 6.**

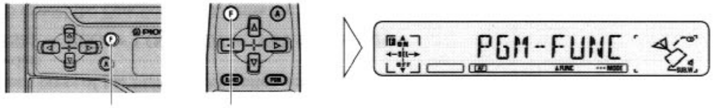


Using the PGM (Programmable) Button

You can memorize Function Menu BSM (BSM), REG (REG), and Local (LOC) functions in the Programmable button.
Initially, the BSM function is memorized in the Programmable button.

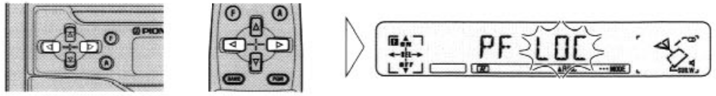
■ **Setting the Programmable Button**

1. **Select the Programmable button setting mode (PGM-FUNC).**

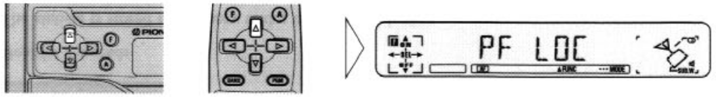


Hold for 2 seconds Hold for 2 seconds

2. **Select the function you want to memorize in the Programmable button.**



3. **Memorize the function in the Programmable button.**

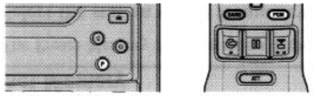


To cancel the Programmable button setting mode, press the BAND button.

■ **Using the Programmable Button**

The Programmable button operates in a different way depending on the function programmed (memorized).

- **Use the Programmable button.**



Function	Press	Hold for 2 seconds
BSM	OFF	ON
REG	ON/OFF	——
LOC	ON/OFF	——

Note:
- **REG is RDS function. Refer to "Using RDS Functions" for details and instructions on how to use this function.**

What is RDS?

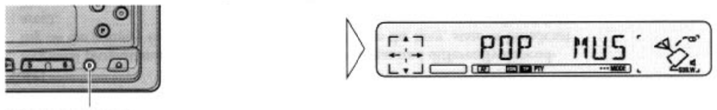
RDS (Radio Data System) is a system for transmitting data along with FM programs. This data, which is inaudible, provides a variety of features such as: program service name, program type display, traffic announcement standby, automatic tuning and program type tuning, intended to aid radio listeners in tuning to a desired station.

Note:
- RDS service may not be provided by all stations.
- RDS functions, like AF (Alternative Frequenceies search) and TA (Traffic Announcement standby), are only active when your radio is tuned to RDS stations.

Program Service Name Display

With this function, the names of networks/stations providing RDS services replace the frequency on the display a few seconds after they are tuned in.

- **When you want to know PTY Information or the frequency of the current station, change the display.**



Each press changes the display ...

Each press of the DISP button selects the display in the following order:
Program Service Name → PTY Information → Frequency

■ PTY Information

PTY (Program Type ID code) information for the currently tuned station appears on the display for 8 seconds. The information is correlated with the list in the section "PTY Function" on page 81.
If the currently tuned station is not broadcasting a PTY code or its PTY code is not among those listed in the section "PTY Function" on page 81, "NOT FOUND" appears on the display.

■ Frequency

The frequency of the current station appears on the display for 8 seconds.

Note:
- After switching displays, if you do not perform an operation within 8 seconds, the Program Service Name is automatically displayed.

AF Function

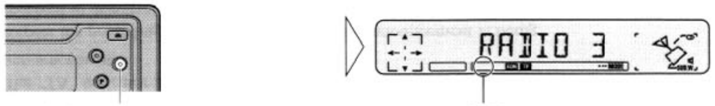
The AF (Alternative Frequencies search) function is used to search for other frequencies in the same network as the currently tuned station. It automatically retunes the receiver to another frequency in the network which is broadcasting a stronger signal when there are problems with reception of the currently tuned station or better reception is possible on a different frequency.

Note:
- AF tunes the receiver only to RDS stations when you use Seek Tuning or BSM Auto Memory with the "AF" indicator ON.
- When you recall a preset station, the tuner may update the preset station with a new frequency from the station's AF list. (This is only available when using presets on the FM1 band.) No preset number appears on the display if the RDS data for the station received differs from that for the originally stored station.
- Sound may be temporarily interrupted by another program during an AF frequency search.
- When the tuner is tuned to a non-RDS station, the "AF" indicator flashes.
- AF can be switched ON or OFF independently for each FM band.

■ Activating/Deactivating the AF Function

AF is set to ON by default.

- **Turn AF to OFF.**



Hold for 2 seconds

"AF" disappears

To turn AF back ON, repeat the preceding operation.

Note:
- You can also switch the AF function ON/OFF in the Function Menu.

Using RDS Functions

PI Seek Function

The tuner searches for another frequency broadcasting the same programming. "PI SEEK" appears on the display and the radio volume is muted during a PI Seek. The muting is discontinued after completion of the PI Seek, whether or not the PI seek has succeded. If the PI Seek is unsuccessful, the tuner returns to the previous frequency.

■ PI Seek

If the tuner fails to locate a suitable alternative frequency or if the broadcasting signal is too weak for proper reception, the PI Seek will automatically start.

■ Auto PI Seek (for preset station)

When preset stations cannot be recalled, as when traveling long distances, the unit can be set to perform PI Seek also during preset recall.
The default setting for Auto PI Seek is OFF.

Note:
- Refer to "Initial Setting" for details on how to switch Auto PI Seek ON/OFF.

REG Function

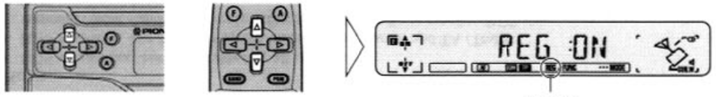
When AF is used to retune the tuner automatically, REG (regional) limits the selection to stations broadcasting regional programs.

Note:
- Regional programming and regional networks are organized differently depending on the country (i.e., they may change according to the hour, state or broadcast area).
- The preset number may disappear on the display if the tuner tunes in a regional station which differs from the originally set station.

■ Activating REG

The REG function can be turned ON independently for each FM band.

1. **Select the REG mode (REG) in the Function Menu.**
2. **Activate or deactivate REG while in an FM band.**



To cancel the Function Menu, press the BAND button.

TA Function

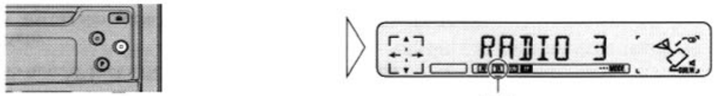
The TA (Traffic Announcement standby) function lets you receive traffic announcements automatically, no matter what source (tuner or built-in CD player) you are listening to. The TA function can be activated for either a TP station (a station that broadcasts traffic information) or an EON TP station (a station carrying information which cross-references TP stations).

■ Activating/Deactivating the TA Function

1. **Tune in a TP or EON TP station.**

   The "TP" indicator lights when the tuner is tuned to a TP station, and both the "EON" and "TP" indicators light when it is tuned to an EON TP station.

2. **Activate the TA function.**



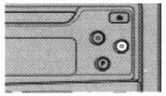
The "TA" indicator lights, indicating that the tuner is waiting for traffic announcements.

Repeat the preceding operation when no traffic announcement is being received to deactivate the TA function.

Note:
- You can also switch the TA function ON/OFF in the Function Menu.
- Only the (+), (–), AF/TA, AUDIO, DISP and SOURCE buttons can be used during traffic announcement reception.
- The system switches back to the original source following traffic announcement reception.
- The TA function can be activated from the built-in CD player mode if the tuner was last set to the FM band but not if it was last set to the MW/LW band.
- If the tuner was last set to FM, turning on the TA function lets you operate other tuning functions while listening to a CD.
- Only TP or EON-TP stations are tuned in during the Seek Tuning mode when the "TA" indicator is ON.
- Only TP or EON-TP stations are stored by BSM when the "TA" indicator is ON.

■ Canceling Traffic Announcements

- **Press the AF/TA button while a traffic announcement is being received to cancel the announcement and return to the original source.**

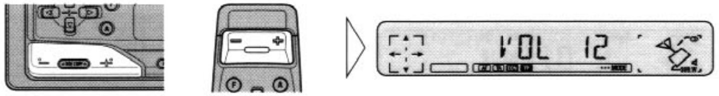


The announcement is canceled but the tuner remains in the TA mode until the AF/TA button is pressed again.

■ Adjusting the TA Volume

When a traffic announcement begins, the volume adjusts automatically to a preset level to enable you to hear the announcement clearly.

- **Set the volume by adjusting it during reception of a traffic announcement.**



The newly set volume is stored in memory and recalled for subsequent traffic announcements.

■ TP Alarm Function

About 30 seconds after the "TP" or "EON" indicator is extinguished due to a weak signal, a 5 second beep sounds to remind you to select another TP or EON-TP station.

- **If you are listening to the tuner, tune in another TP station or EON-TP station.**

In the built-in CD player mode, the tuner automatically seeks out the TP station with the strongest signal in the current area 10 (or 30)* seconds after "TP" disappears from the display.

*** Time taken before Seek begins.**

TA funtion ON	10 seconds
TA, AF functions ON	30 seconds

PTY Function

The PTY function enables you to select stations by the type of programming they broadcast (PTY Search). It also provides automatic tuning to emergency broadcasts (PTY Alarm).

Note:

- PTY code program types are as follows:

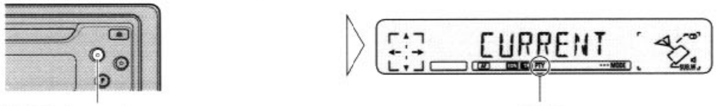
1. NEWS:	News.
2. AFFAIRS:	Current affairs.
3. INFO:	General information and advice.
4. SPORT:	Sports programs.
5. EDUCATE:	Educational programs.
6. DRAMA:	All radio plays and serials.
7. CULTURE:	Programs concerned with any aspect of national or regional culture.
8. SCIENCE:	Programs about nature, science and technology.
9. VARIED:	Light entertainment programs.
10. POP MUS:	Popular music.
11. ROCK MUS:	Contemporary modern music.
12. EASY MUS:	Easy listening music.
13. L. CLASS:	Light classical music.
14. CLASSICS:	Serious classical music.
15. OTH MUS:	Other types of music, which can't be categorized.
16. WEATHER:	Weather reports/Meteorological information.
17. FINANCE:	Stock market reports, commerce, trading etc.
18. CHILDREN:	Children's programs.
19. SOCIAL:	Social affairs programs.
20. RELIGION:	Religion affairs programs or services.
21. PHONE IN:	Phone in based programs.
22. TOURING:	Travel programs, not for announcements about traffic problem.
23. LEISURE:	Programs about hobbies and recreational activities.
24. JAZZ:	Jazz music based programs.
25. COUNTRY:	Country music based programs.
26. NAT MUS:	National music based programs.
27. OLDIES:	Oldies music, 'Golden age' based programs.
28. FOLK MUS:	Folk music based programs.
29. DOCUMENT:	Documentary programs.

- If a PTY code of zero is received from a station, "NONE" will be displayed. This indicates that the station has not defined its programme contents.
- "NO PTY" will be displayed in the following cases:
  - * If the received station is not sending any PTY code.
  - * If the signal is too weak for this unit to pick up the PTY code.

Using RDS Functions

■ PTY Search Setting Function

1. **Enter the PTY Search setting mode.**

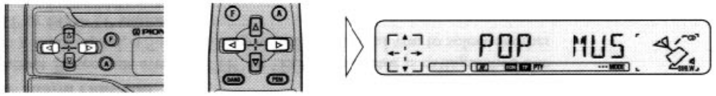


Hold for 2 seconds

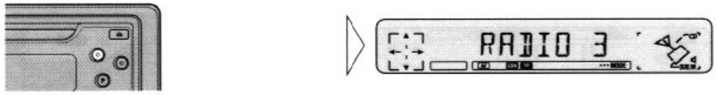
The "PTY" indicator lights and the name of a program type appears on the display for 5 seconds.

Note:
- CURRENT sets desired PTY to the program type of the current station (only for RDS stations broadcasting PTY information).

2. **Select one of the PTYs:**



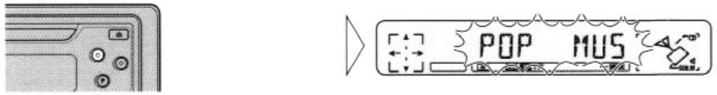
3. **When the desired programming type appears on the display, return to the normal display.**



Note:
- You can also select the PTY Search setting mode (PTY SEL) in the Function Menu, and switch the PTY Search function ON/OFF.

■ PTY Search Function

- **Initiate a PTY Search.**



The tuner searches for a station broadcasting the desired PTY.

Note:
- The program of some stations may differ from that indicated by the transmitted PTY.
- If no station broadcasting the selected programming type is found, "NOT FOUND" is displayed for about 2 seconds, and the tuner returns to the original station.

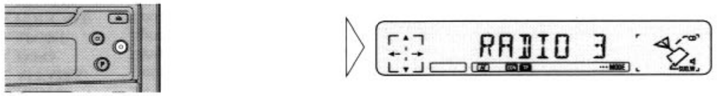
■ PTY Alarm

PTY Alarm is a special PTY code for announcements regarding emergencies such as natural disasters. When the tuner receives the radio alarm code, "ALARM" appears on the display and the volume adjusts to the TA volume. When the station stops broadcasting the emergency announcement, the system returns to the previous source.

Note:
- Only the (+), (–), AF/TA, AUDIO, DISP and SOURCE buttons can be used during emergency announcement reception.
- The system switches back to the original source following emergency announcement reception.

■ Canceling Emergency Announcements

- **Press the AF/TA button during emergency announcement reception to cancel the announcement and return to the previous source.**

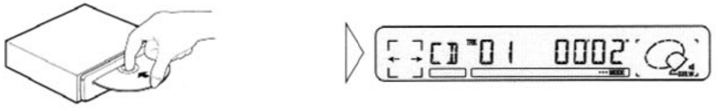


Using the Built-in CD Player

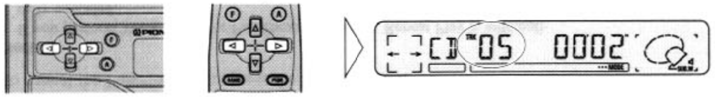
Basic Operation of Built-in CD Player

The built-in CD player plays one standard 12 cm or 8 cm (single) CD at a time. Do not use an adapter when playing 8 cm CD.

1. **Insert the disc with the recorded (iridescent) surface down.**



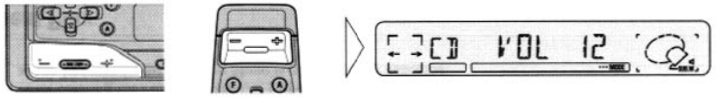
2. **Select the desired track (and phrase).**



This product's built-in CD player lets you select the Track Search function or Fast-forward/Reverse function by changing the length of the time you press the button.

Track Search	0.5 seconds or less
Fast-forward/Reverse	Continue pressing

3. **Raise or lower the volume.**

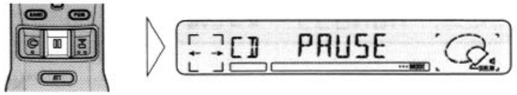


4. **Remove the disc.**

Note:
- The CD function can be turned ON/OFF with the disc remaining in this product. (See page 75.)
- Discs left partially inserted after ejection may incur damage or fall out.
- If a disc cannot be inserted fully or playback fails, make sure the recorded side is down, push the EJECT button and check the disc for damage before reinserting it.
- If a CD is inserted with the recorded side up, it will be ejected automatically after a few moments.
- If the built-in CD player cannot operate properly, an error message (such as "ERROR-14") appears on the display. Refer to "Built-in CD Player Troubleshooting" on page 85.

Pause

- **Stop playback temporarily or restarts the system.**

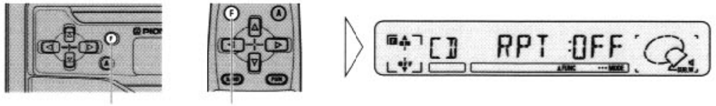


Note:
- You can also switch the Pause function ON/OFF in the Function Menu.

Entering the Function Menu

In this menu you can select built-in CD player functions.

- **Select the desired mode in Function Menu.**



Each press changes the mode ...

Each press changes the mode ...

Each press of the FUNCTION button selects the mode in the following order:
RPT → RDM → SCAN → PAUSE

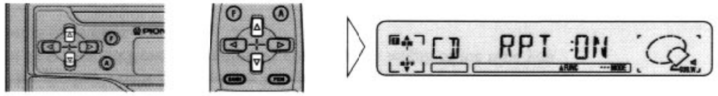
To cancel the Function Menu, press the BAND button.

Note:
- After entering the Function Menu, if you do not perform an operation within about 30 seconds, the Function Menu is automatically canceled.

Repeat Play

Repeat Play plays the same track repeatedly.

1. **Select the Repeat mode (RPT) in the Function Menu.**
2. **Switch the Repeat Play ON or OFF.**



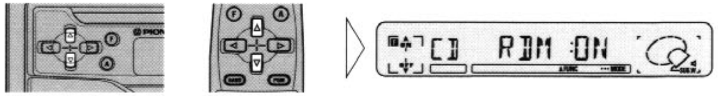
To cancel the Function Menu, press the BAND button.

Note:
- If you perform Track Search or Fast-forward/Reverse, Repeat Play is automatically canceled.

Random Play

Random Play plays the tracks on a CD in random order for variety.

1. **Select the Random mode (RDM) in the Function Menu.**
2. **Switch the Random Play ON or OFF.**



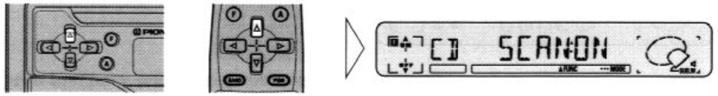
To cancel the Function Menu, press the BAND button.

Note:
- Since playback is random, the same track may be repeated consecutively.

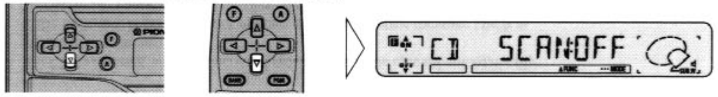
Scan Play

Scan Play plays the first 10 seconds or so of each track on a CD in succession.

1. **Select the Scan mode (SCAN) in the Function Menu.**
2. **Switch the Scan Play ON.**



3. **When you hear the track you are looking for, cancel Scan Play.**
   If the Function Menu is automatically canceled at this time, select the Scan mode in the Function Menu once more.



Playback of the current track continues.

To cancel the Function Menu, press the BAND button.

Note:
- Scan Play is canceled automatically after all the tracks on a disc have been scanned.

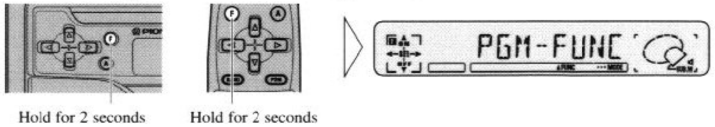
Using the Built-in CD Player

Using the PGM (Programmable) Button

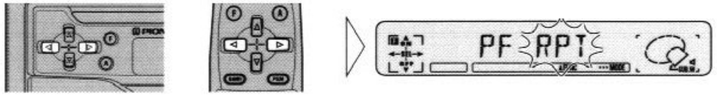
In the Function Menu, you can memorize the Pause (PAUSE), Repeat (RPT), and Random (RDM) functions in the Programmable button. Initially, PAUSE is memorized in the Programmable button.

■ Setting the Programmable Button

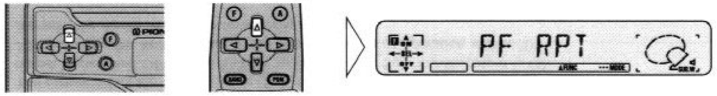
1. **Select the Programmable button setting mode (PGM-FUNC).**



2. **Select the function you want to memorize in the Programmable button.**



3. **Memorize the function in the Programmable button.**

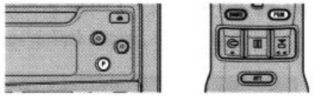


To cancel the Programmable button setting mode, press the BAND button.

■ Using the Programmable Button

The Programmable button operates in a different way depending on the function programmed (memorized).

- **Use the Programmable button.**



Function	Press	Hold for 2 seconds
PAUSE	ON/OFF	——
RPT	ON/OFF	——
RDM	ON/OFF	——

Built-in CD Player Troubleshooting

Error Message

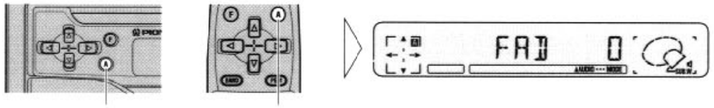
When problems occur with CD playback, an error message appears on the display. Refer to the table below to identify the problem, then take the suggested corrective action. If the error persists, contact your dealer or your nearest PIONEER Service Center.

Message	Possible cause	Recommended action
ERROR- 11, 12, 17, 30	Dirty disc.	Clean the disc.
ERROR- 11, 12, 17, 30	Scratched disc.	Replace the disc.
ERROR- 14	Unrecorded CD.	Check the disc.
ERROR- 10, 11,12, 14, 17, 30, A0	Electrical or mechanical problem.	Turn the ignition ON and OFF, or switch to a different source, then back to the CD player.
HEAT	CD player overheating.	Discontinue play until the machine temperature drops.

Entering the Audio Menu

In this menu, you can adjust sound quality parameters such as Fader/Balance, Bass/Treble, and Sub-woofer settings.

- **Select the mode you want to adjust in Audio Menu.**



Each press changes the mode ...

Each press changes the mode ...

Each press of the AUDIO button selects the mode in the following order:
FAD → BAS → TRE → LOUD → SUB.W → 80HZ 0 → FIE

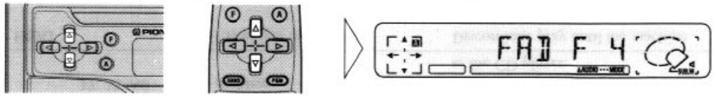
To cancel the Audio Menu, press the BAND button.

Note:
- You cannot select the SUB.W mode and 80Hz 0 mode (Sub-woofer setting mode) if the preout setting is switched to the Front output mode in the Initial Setting Menu. (See page 89.)
- You cannot select the 80Hz 0 mode (Sub-woofer setting mode) if Sub-woofer output is switched OFF in the SUB.W mode. Initially, Sub-woofer output is ON.
- After entering the Audio Menu, if you do not perform an operation within 30 seconds, the Audio Menu is automatically canceled.

Balance Adjustment

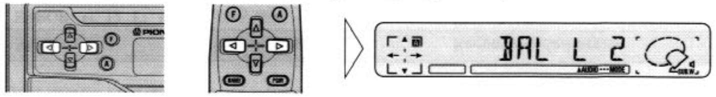
This function allows you to select a Fader/Balance setting that provides ideal listening conditions in all occupied seats.

1. **Select the Fader/Balance mode (FAD) in the Audio Menu.**
2. **Shift the balance progressively to the front or rear speakers.**



"FAD F15" – "FAD R15" is displayed as it moves from front to rear.

3. **Shift the balance to the left or right speaker, respectively.**



"BAL L 9" – "BAL R 9" is displayed as it moves from left to right.

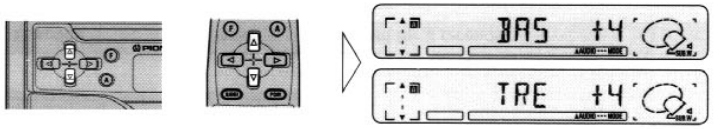
To cancel the Audio Menu, press the BAND button.

Note:
- "FAD 0" is the proper setting when 2 speakers are in use.

Bass/Treble Adjustment

This product is equipped with two tone adjustment modes, the Bass (BAS) and Treble (TRE) modes.

1. **Select Bass mode (BAS) or Treble mode (TRE) in the Audio Menu.**
2. **Increase or decrease the intensity of the Bass or Treble, whichever is selected.**



The display shows "+6" – "–6".

3. **Repeat steps 1 – 2 above for the other Bass or Treble adjustment.**

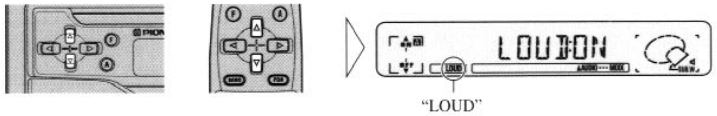
To cancel the Audio Menu, press the BAND button.

Audio Adjustment

Loudness Adjustment

The Loudness function compensates for deficiencies in the low and high sound ranges at low volume.

1. **Select the Loudness mode (LOUD) in the Audio Menu.**
2. **Switch the Loudness function ON or OFF.**

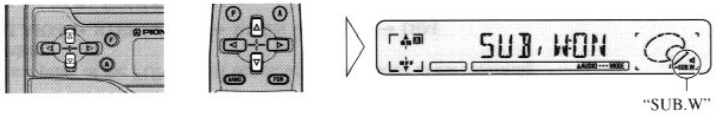


To cancel the Audio Menu, press the BAND button.

Sub-woofer Output

This product is equipped with a Sub-woofer output which can be switched ON or OFF. Initially, Sub-woofer output is ON.

1. **Select the Sub-woofer ON/OFF mode (SUB.W) in the Audio Menu.**
2. **Switch the Sub-woofer output ON or OFF.**



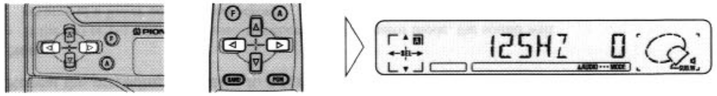
To cancel the Audio Menu, press the BAND button.

Note:
- You cannot select the SUB.W mode if the preout setting is switched to Front output mode in the Initial Setting Menu. (See page 89.)
- Select the OFF setting when you do not want the Sub-woofer to operate.

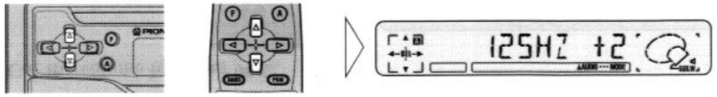
Sub-woofer Setting Adjustment

When the Sub-woofer output is ON, you can adjust the cut-off frequency and the output level of Sub-woofer.

1. **Select the Sub-woofer setting mode (80HZ 0) in the Audio Menu.**
2. **Select the frequency to 50 Hz, 80 Hz or 125 Hz.**



3. **Increase or decrease the output level.**



The display shows "+6" – "–6".

To cancel the Audio Menu, press the BAND button.

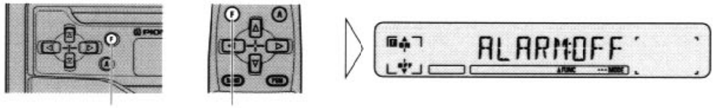
Note:
- You cannot select the 80Hz 0 mode (Sub-woofer setting mode) if Sub-woofer output is switched OFF in the SUB.W mode.

Initial Setting

Entering the Initial Setting Menu

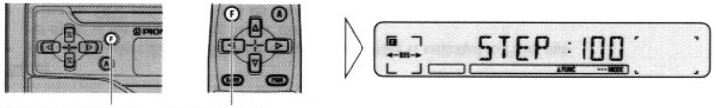
With this menu, you can perform initial settings for the unit.

1. **Switch the sources OFF.**
2. **Enter the Initial Setting Menu with the sources OFF.**



Hold for 2 seconds Hold for 2 seconds

3. **Select the desired mode.**



Each press changes the mode ... Each press changes the mode ...

Each press of the FUNCTION button selects the mode in the following order:
ALARM → STEP → A-PI → WARN → P/OUT → DIM

To cancel the Initial Setting Menu, press the BAND button.

Note:
- **ALARM is a new feature "Removable Front Panel Alert". Refer to "RFP Alert Function" for details and instructions on how to use this function.**
- Holding down the FUNCTION button for 2 seconds also cancels the Initial Setting Menu.

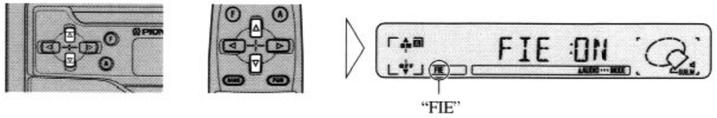
Audio Adjustment

F.I.E. Function

The F.I.E. (Front Image Enhancer) function is a simple method of enhancing front imaging by cutting mid- and high-range frequency output from the rear speakers, limiting their output to low-range frequencies.

Precaution:
- When the F.I.E. function is deactivated, the rear speakers output sound in all frequencies, not only bass sounds. Reduce the volume before disengaging

1. **Select the F.I.E. mode (FIE) in the Audio Menu.**
2. **Switch the F.I.E. function ON or OFF.**



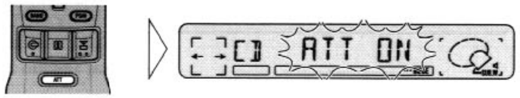
To cancel the Audio Menu, press the BAND button.

Note:
- After switching the F.I.E. function ON, select the FAD mode in the Audio Menu, and adjust front and rear speaker volume levels until they are balanced. (See page 86.)
- Switch the F.I.E. function OFF when using a 2-speaker system.

Volume Attenuator

The Attenuator reduces the volume instantly.

- **Cut the volume by about 90%.**



Repeat the preceding operation to return to previous volume.

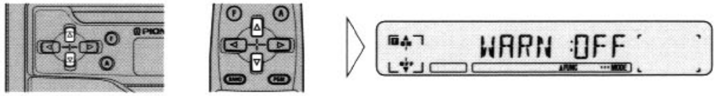
Note:
- If the (+) or (–) buttons are used to cancel the Attenuator mode, the sound will resume at a lower volume than before.

Initial Setting

Setting the Warning Tone

You can switch the Warning Tone function ON/OFF.

1. **Select the Warning Tone mode (WARN) in the Initial Setting Menu.**
2. **Switch the Warning Tone ON or OFF.**

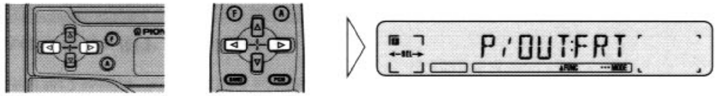


To cancel the Initial Setting Menu, press the BAND button.

Setting Preout Output

This product is equipped with two Preout outputs. One is for Rear output. The other can be used for Sub-woofer or Front output. Initially, it is set for Sub-woofer output.
When connecting a front speaker to this output, set for Front output.

1. **Select the Preout Output Setting mode (P/OUT) in the Initial Setting Menu.**
2. **Select your desired Preout output type.**

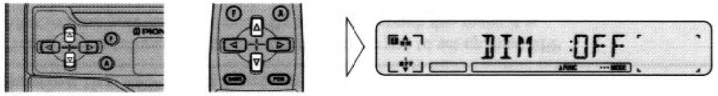


To cancel the Initial Setting Menu, press the BAND button.

Setting the Dimmer

To prevent this display becoming too bright at night, it is automatically dimmed when you switch on your vehicle's headlights. You can switch the dimmer ON/OFF.

1. **Select the Dimmer mode (DIM) in the Initial Setting Menu.**
2. **Switch the Dimmer ON or OFF.**

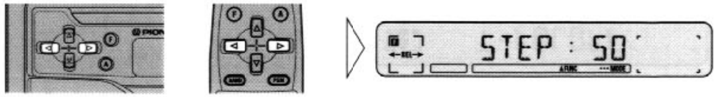


To cancel the Initial Setting Menu, press the BAND button.

Setting the FM Tuning Step

Normally set at 50 kHz during Seek Tuning in the FM mode, the tuning step changes to 100 kHz when the AF or TA mode is activated.
It may be preferable to set tuning step to 50 kHz in the AF mode.

1. **Select the FM tuning step mode (STEP) in the Initial Setting Menu.**
2. **Select the desired tuning step.**



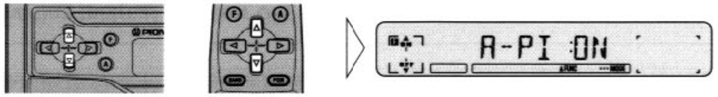
To cancel the Initial Setting Menu, press the BAND button.

Note:
- The tuning step remains set at 50 kHz during Manual Tuning.
- The tuning step returns to 100 kHz if the battery is temporarily disconnected.

Setting the Auto PI Seek

During Preset Station PI Seek operation, you can switch the Auto PI Seek function ON/OFF. (Refer to "PI Seek Function" on page 80.)

1. **Select the Auto PI Seek mode (A-PI) in the Initial Setting Menu.**
2. **Switch the Auto PI Seek ON or OFF.**



To cancel the Initial Setting Menu, press the BAND button.

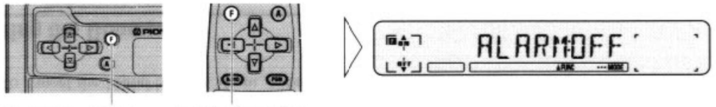
RFP Alert Function

In addition to the Removable Front Panel, Pioneer has incorporated a new feature **"Removable Front Panel Alert"**. This feature is designed to protect your new Pioneer car stereo as well as your vehicle contents.

Activating the RFP Alert Feature

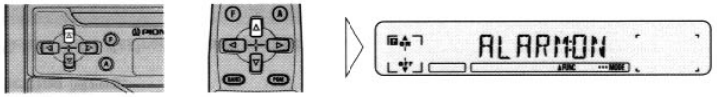
Pioneer has developed a menu display that allows you to set-up your RFP Alert to meet your personal needs. By scrolling through this menu it is possible to select your own "Entry Delay Time", "Speaker Output Volume", "Selectable Output", "Door System Type", "Ignition Key Disarm" and "Remote Disarm".
Initially from the factory the RFP Alert feature is not activated.

1. **Select the RFP Alert Feature ON/OFF mode with the sources OFF.**



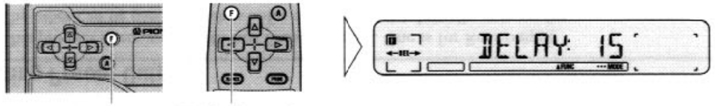
Hold for 2 seconds Hold for 2 seconds

2. **Activate the RFP Alert Feature.**



Press the ▼ button to deactivate the RFP Alert Feature.

3. **Enter the RFP Alert Setting Menu.**

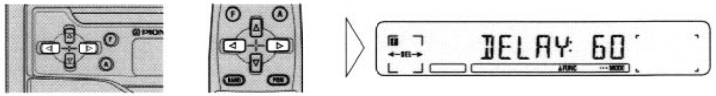


Hold for 2 seconds Hold for 2 seconds

Setting Entry Delay Time

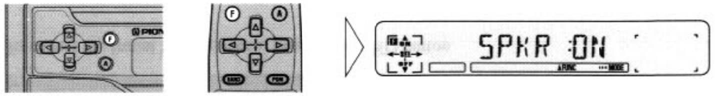
Initially the "Entry Delay Time" is set to 15 seconds. The "Entry Delay Time" can be adjusted to be 0, 5, 15, 30, 45 or 60 seconds.

1. **Decrease or increase the "Entry Delay Time".**



Display shows 0, 5, 15, 30, 45, or 60.

2. **Advance to next selection.**



Activating Internal Speaker ON/ OFF

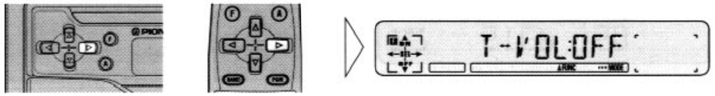
This feature allows you to select whether or not the speaker output is sounded when the "RFP Alert" is triggered. Initially from the factory the speaker output is activated. Toggling between ▲, ▼ buttons allows you to deactivate or activate the "Internal Speaker". If you switch the speaker output OFF, you can not change the "TEST MODE".

■ Speaker Volume Output Adjustment

If the "Internal Speaker Output" has been selected then it is possible to adjust the volume of the speaker output for when the Alert is triggered. To adjust the volume you must engage the "TEST MODE".

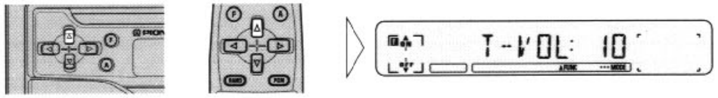
Note:
- If the "Internal Speaker Output" is turned OFF, then this menu will not appear.

1. **Engage the "TEST MODE".**



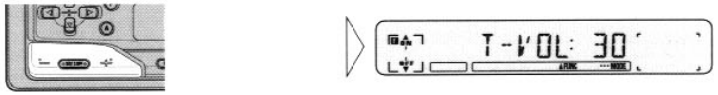
Continued overleaf.

2. **Activate the "TEST MODE".**



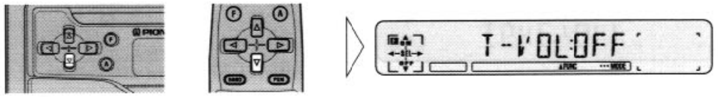
In this mode the speakers will sound.

3. **Decrease or increase the volume.**

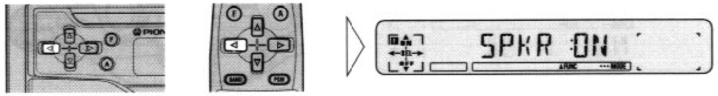


Display shows 10 – 30.

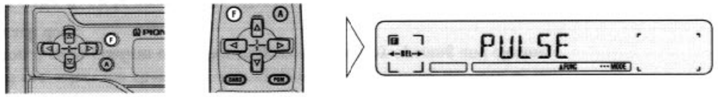
4. **After selecting your preferred volume setting, deactivate the "TEST MODE".**



5. **Cancel the "TEST MODE".**



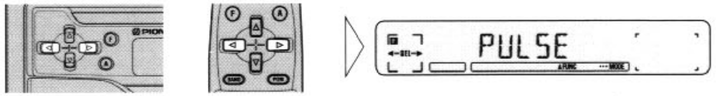
6. **Advance to next selection.**



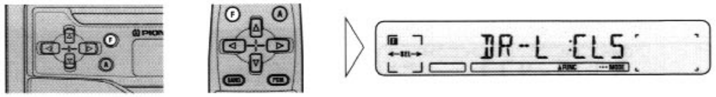
Setting the Selectable Output (Pulse/Constant)

This mode enables you to select a "Constant" output or "Pulsed" output. When connecting a Siren the "Constant" output should be selected. When connecting the horn or lights the "Pulsed" output should be selected.

1. **Select your desired output type.**



2. **Advance to next selection.**



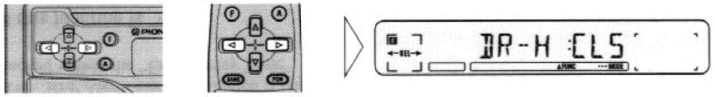
Selecting Door Switching Systems

It is necessary to select the correct "Door System Type" (Negative or Positive switching) for that of your vehicle. Initially, the system is set for vehicles with the grounding type (Negative switching).
Select the correct "Door system type" of your vehicle from below.

■ **Vehicles to select "DR-L :CLS"**
EUROPEAN, JAPANESE, GM, CHRYSLER

■ **Vehicles to select "DR-H :CLS"**
JAGUAR, MERCEDES*, FORD, etc
* Some Models Only.

- **Select "DR-L :CLS" or "DR-H :CLS" for the correct door system type.**

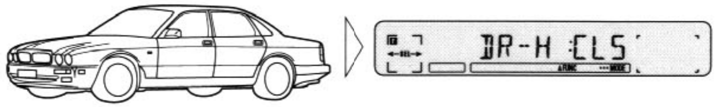


RFP Alert Function

- **Door System Confirmation**

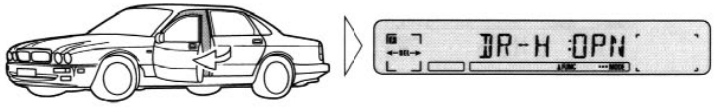
The door system confirmation feature was incorporated to ensure that the correct door system type has been selected. (eg. Set to "DR-H :CLS" for JAGUAR vehicles.)

1. First, close all the doors. If the correct door system type has been selected then the Display will show "DR-H :CLS".

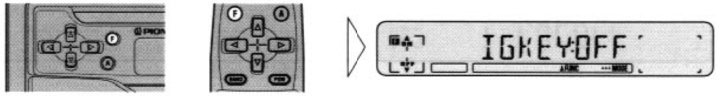


If not, select the alternative door system type by pressing the ◄ or ► button. Lastly, confirm each door triggers the Alert by opening and closing each door.

2. As the door is opened the display should change accordingly ("DR-H :CLS" – "DR-H :OPN").



3. Advance to next selection.



Ignition Key Disarm

You can disarm "RFP Alert" with the ignition key if you have forgotten the Removable Front Panel.
The method for disarming "RFP Alert" with the ignition key differs depending on whether this function is switched ON or OFF.

- **If this function is "ON" or "OFF":**

The "RFP Alert" can be disarmed if the Removable Front Panel is reattached within the "Entry Delay Time".

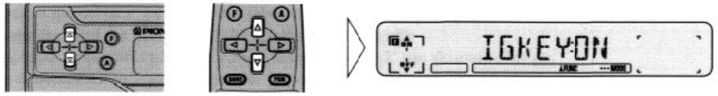
- **If this function is "ON":**

The "RFP Alert" can be disarmed if the ignition key is inserted in the ignition within the "Entry Delay Time", then the key is turned from "OFF" to "ON" 5 times within 1 minute.

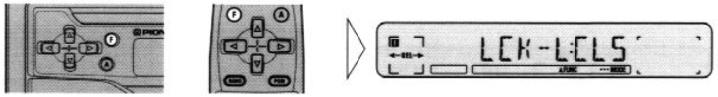
- **If this function is "OFF":**

The "RFP Alert" can be disarmed if the ignition key is inserted in the ignition and turned from "OFF" position to the "ON" within the "Entry Delay Time".

1. Switch the Ignition Key Disarm ON or OFF.



2. Advance to next selection.



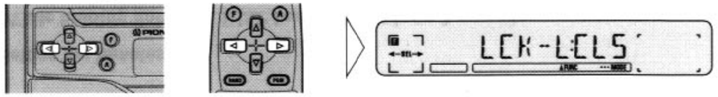
Central Door Lock Systems

The RFP Alert can be disarmed by Un-Locking the doors with a remote key-less entry system. If the unit's stand-by state is disarmed, the LED's blinking speed becomes faster. (It can be understood if the "RFP Alert" has been disarmed by the change in the LED's blinking speed.)

Note:
- If the "RFP Alert" is disarmed by the key-less entry system, it will remain disarmed. To reset, turn the ignition on reattach the front panel then turn the ignition to the off position and remove the front panel .
- If your vehicle is equipped with a central door lock but the glass or shock sensor is not connected, if the window is broken and the central door lock is released, this unit's RFP Alert will not operate.
- Pioneer recommends that both a shock sensor and glass sensor be installed when you are using the "Remote Disarming" feature.

■ Selecting the Door Lock Type

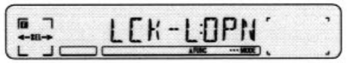
- **Select the "LCK-L:CLS" or "LCK-H:CLS" for the correct door lock type.**



■ Door Lock Confirmation

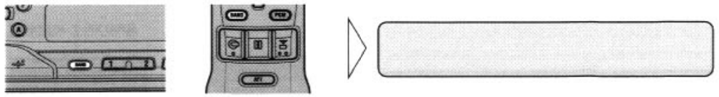
The door lock confirmation feature was incorporated to ensure that the correct door lock type has been selected. (eg. Set to "LCK-L:CLS".)

1. **As the doors are unlocked with central door lock system the display should flash "LCK-L:OPN" accordingly.**



If not, select the alternative door lock type by pressing the ◄ or ► button.

2. **Cancel the RFP Alert Setting Menu.**



Setting of the "RFP Alert" is now complete.

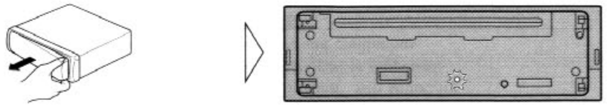
Note:
- In the case that the battery is disconnected or the RESET button is pressed, it may be necessary to re-program the RFP Alert Menu; otherwise this setting needs to be done only once.
- When the RFP Alert is armed, you cannot disarm it by pressing the RESET button.

Operation of "RFP Alert"

Providing the installation and setting of the "RFP Alert Setting Menu" has been performed correctly, operation of the "RFP Alert" is very simple.

Arming Alert

To arm your Alert simply turn off the ignition and detach the front panel, as described on page 36. After detaching the front panel the "RFP Alert" will automatically arm itself after 30 seconds, providing all of the doors are closed. If after 30 seconds, a door still remains open the RFP Alert will not arm until the last door has been closed. After closing all of the doors, ensure that they are securely locked. The LED indicator on the head unit will flash as a visual deterrent. Your vehicle is now protected by your "RFP Alert".

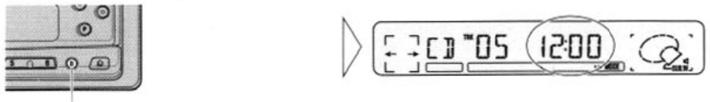


Other Functions

Time Display/Setting

- **Displaying the Time**

- **To turn the time display ON with the source ON.**

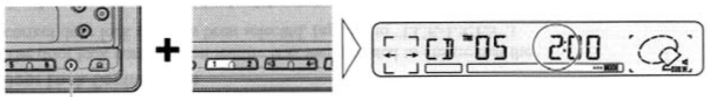


Hold for 2 seconds

The time display disappears temporarily when you perform another operation, but the time indication returns to the display after 25 seconds.

- **Setting the Hours**

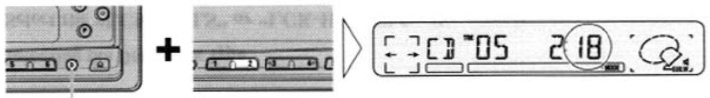
- **While holding down the DISP button for at least 2 seconds, press button 1 to set the hour.**



Hold for 2 seconds

- **Setting the Minutes**

- **While holding down the DISP button for at least 2 seconds, press button 2 to set the minute.**



Hold for 2 seconds

When you release the DISP button, the second count begins from 00 seconds.

Note:
- The hour and minute can be advanced by pressing the respective buttons either consecutively or continuously.

RFP Alert Function

Disarming Alert

Upon entering your vehicle, and within the "Entry Delay Time" set within the "RFP Alert Menu", attach your Pioneer Removable Front Panel.

- **If you have forgotten the Removable Front Panel:**

If the "Ignition Key Disarm" is "ON", insert the ignition key in the ignition within the "Entry Delay Time", then turn the key from "OFF" to "ON" 5 times within 1 minute.
If the "Ignition Key Disarm" is "OFF", insert the ignition key in the ignition and turn the key from "OFF" to "ON" within the "Entry Delay Time".

Entry Detection

If the "RFP Alert" was not disarmed in accordance with "Disarming Alert", the "RFP Alert" will be triggered. The "RFP Alert" will sound for 60 seconds and will repeat 5 times if any door is left open or reopened. After the fifth time the "RFP Alert" will reset to prevent continuous sounding and prevent your battery from discharging.

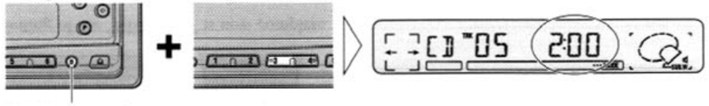
Precaution:
- Upon returning to your vehicle and before opening any doors, check to see if the LED indicator is still flashing. If the LED is no longer flashing, it indicates that the Alert as sounded. Disarming, as described above, is still necessary.

Other Functions

- **Synchronizing with the Time Announcement**

- **While holding down the DISP button for at least 2 seconds, press button 3 to reset the minute and second indications to zero.**

Example: When synchronizing between 1:30 and 2:29.



Hold for 2 seconds

● DEH-535R/EW, DEH-534R/EW

Specifications

General

Power source .... 14.4 V DC (10.8 – 15.1 V allowable)
Grounding system .... Negative type
Max. current consumption .... 10.0 A
Dimensions
(mounting size) .... 178 (W) × 50 (H) × 150 (D) mm
(front face) .... 188 (W) × 58 (H) × 20 (D) mm
Weight .... 1.4 kg

Amplifier

Maximum power output .... 40 W × 4
Continuous power output .... 25 W × 4
(DIN45324, +B=14.4 V)
Load impedance .... 4 Ω (4 – 8 Ω allowable)
Preout output level/output impedance .... 500 mV/1 kΩ
Tone controls
(Bass) .... ±12 dB (100 Hz)
(Treble) .... ±12 dB (10 kHz)
Loudness contour ...... +10 dB (100 Hz), +7 dB (10 kHz)
(volume: –30 dB)

CD player

System .... Compact disc audio system
Usable discs .... Compact disc
Signal format .... Sampling frequency: 44.1 kHz
Number of quantization bits: 16; linear
Frequency characteristics .... 5 – 20,000 Hz (±1 dB)
Signal-to-noise ratio .... 94 dB (1 kHz)(IEC-A network)
Dynamic range . ... 90 dB (1 kHz)
Number of channels .... 2 (stereo)

FM tuner

Frequency range .... 87.5 – 108 MHz
Usable sensitivity
.... 11 dBf (1.0 μV/75 Ω, mono, S/N: 30 dB)
50 dB quieting sensitivity .... 16 dBf (1.7 μV/75 Ω, mono)
Signal-to-noise ratio .... 70 dB (IEC-A network)
Distortion .... 0.3% (at 65 dBf, 1 kHz, stereo)
Frequency response .... 30 – 15,000 Hz (±3 dB)
Stereo separation .... 40 dB (at 65 dBf, 1 kHz)

MW tuner

Frequency range . .. . 531 – 1,602 kHz
Usable sensitivity .... 18 μV (25 dB) (S/N: 20 dB)
Selectivity .... 50 dB (±9 kHz)

LW tuner

Frequency range .... 153 – 281 kHz
Usable sensitivity .... 30 μV (30 dB) (S/N: 20 dB)
Selectivity .... 50 dB (±9 kHz)

● DEH-635R/EW

Specifications

General

Power source .... 14.4 V DC (10.8 – 15.1 V allowable)
Grounding system .... Negative type
Max. current consumption .... 10.0 A
Dimensions
(mounting size) .... 178 (W) × 50 (H) × 150 (D) mm
(front face) .... 188 (W) × 58 (H) × 20 (D) mm
Weight .... 1.4 kg

Amplifier

Maximum power output .... 40 W × 4
Continuous power output .... 25 W × 4
(DIN45324, +B=14.4 V)
Load impedance .... 4 Ω (4 – 8 Ω allowable)
Preout output level/output impedance .... 500 mV/1 kΩ
Tone controls
(Bass) .... ±12 dB (100 Hz)
(Treble) . ... ±12 dB (10 kHz)
Loudness contour .. +10 dB (100 Hz), +7 dB (10 kHz)
(volume: –30 dB)

CD player

System .... Compact disc audio system
Usable discs .... Compact disc
Signal format ... . Sampling frequency: 44.1 kHz
Number of quantization bits: 16; linear
Frequency characteristics .... 5 – 20,000 Hz (±1 dB)
Signal-to-noise ratio .... 94 dB (1 kHz)(IEC-A network)
Dynamic range .... 90 dB (1 kHz)
Number of channels .... 2 (stereo)

FM tuner

Frequency range .... 87.5 – 108 MHz
Usable sensitivity
.... 11 dBf (1.0 μV/75 Ω, mono, S/N: 30 dB)
50 dB quieting sensitivity .... 16 dBf (1.7 μV/75 Ω, mono)
Signal-to-noise ratio .... 70 dB (IEC-A network)
Distortion .... 0.3% (at 65 dBf, 1 kHz, stereo)
Frequency response .... 30 – 15,000 Hz (±3 dB)
Stereo separation .... 40 dB (at 65 dBf, 1 kHz)

MW tuner

Frequency range .... 531 – 1,602 kHz
Usable sensitivity .... 18 μV (25 dB) (S/N: 20 dB)
Selectivity .... 50 dB (±9 kHz)

LW tuner

Frequency range .... 153 – 281 kHz
Usable sensitivity .... 30 μV (30 dB) (S/N: 20 dB)
Selectivity .... 50 dB (±9 kHz)

PIONEER
The Art of Entertainment

Service Manual

ORDER NO.
CRT1829

CD MECHANISM MODULE
CX-597

- **This service manual describes the operation of the CD mechanism incorporated in models listed in the table below.**
- **When performing repairs use this manual together with the specific manual for model under repair.**

Model	Service Manual	CD Mechanism Module	CD Mechanism Unit
DEH-P825R/EW, DEH-P825/UC DEH-P823/ES, DEX-P99/UC	CRT1805	CXK5011	CXA8880
DEH-P725R/EW, DEH-P725R-W/EW DEH-P725/UC, DEH-P725-W/UC DEH-P723/ES, DEH-P625/UC DEX-P88/UC, DEX-P77R/EW	CRT1812	CXK5001	CXA8870
DEH-625R/EW, DEH-624R/EW DEH-525R/EW, DEH-524R/EW DEH-424R/GR, DEH-424/EW DEH-425/IT	CRT1808	CXK5001	CXA8870
DEH-59/UC, DEH-52/UC DEH-525/UC, DEH-49/UC DEH-42/UC, DEH-425/UC DEH-225/UC, DEH-523/ES DEH-323/ES, DEH-223/ES	CRT1809	CXK5001	CXA8870

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3. DISASSEMBLY AND ASSEMBLY 17

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1. THE SUMMARY OF CIRCUITS

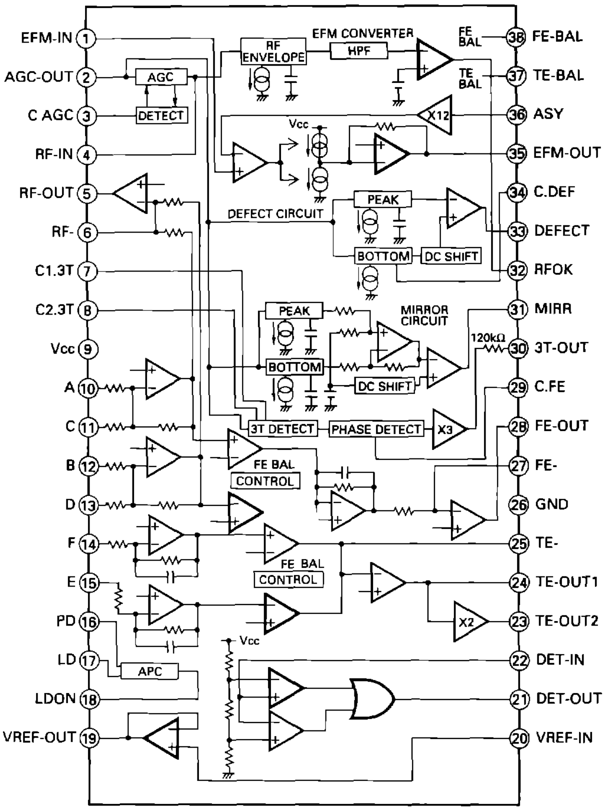
1.1 PRE-AMP SECTION (UPC2572GS: IC101)

This section processes the pickup output signals to create the signals for the servo, demodulator & control.

The pickup output signals are I-V converted by the pre-amp with built in photo-detector in the pickup, and added by the RF amp (IC101) to obtain the RF, FE, TE, TE zero cross, and other signals.

The main component is the UPC2572GS and each section is explained below. Because this system has a single power supply (+5V), the reference voltage for this IC, the PU and the servo circuit is the voltage REFO (+2.5V). The REFO signal is obtained by buffering REFOUT from the servo LSI (IC201: UPD63702GF) and is available from Pin 19 of IC101. All measurements should be done using this REFO as reference.

Note: During measurement, do not short REFO and GND.

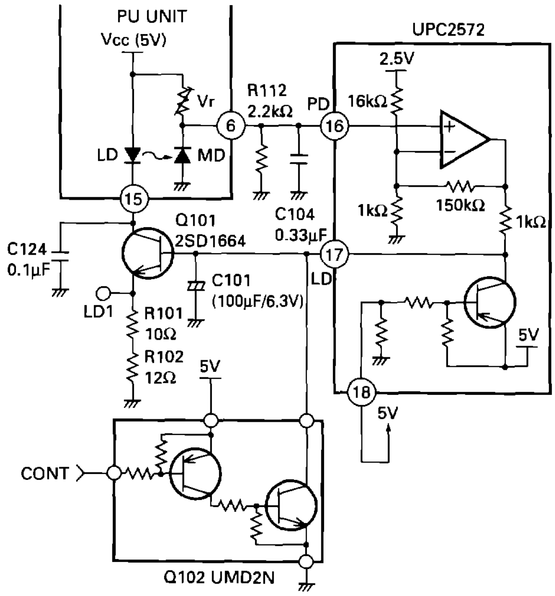


EFM-IN ①
AGC-OUT ②
C AGC ③
RF-IN ④
RF-OUT ⑤
RF- ⑥
C1.3T ⑦
C2.3T ⑧
Vcc ⑨
A ⑩
C ⑪
B ⑫
D ⑬
F ⑭
E ⑮
PD ⑯
LD ⑰
LDON ⑱
VREF-OUT ⑲
㊳ FE-BAL
㊲ TE-BAL
㊱ ASY
㉟ EFM-OUT
㉞ C.DEF
㉝ DEFECT
㉜ RFOK
㉛ MIRR
㉚ 3T-OUT
㉙ C.FE
㉘ FE-OUT
㉗ FE-
㉖ GND
㉕ TE-
㉔ TE-OUT1
㉓ TE-OUT2
㉒ DET-IN
㉑ DET-OUT
⑳ VREF-IN
AGC
DETECT
RF ENVELOPE
EFM CONVERTER
HPF
FE BAL
TE BAL
X12
Vcc
DEFECT CIRCUIT
PEAK
BOTTOM
DC SHIFT
MIRROR CIRCUIT
120kΩ
3T DETECT
PHASE DETECT
X3
FE BAL CONTROL
X2
APC

Fig.1 : UPC2572GS BLOCK DIAGRAM

1) APC Circuit (Automatic Power Control)

When the laser diode is driven with constant current, the optical output has large negative temperature characteristics. So the current must be controlled to hold the output constant with the monitor diode. The circuit that carries out this function is the APC circuit. The LD current is obtained by measuring the voltage between LD1 and ground and the value of this current is about 35mA.



PU UNIT
Vcc (5V)
Vr
LD
MD
⑥
⑮
R112
2.2kΩ
PD
⑯
UPC2572
2.5V
16kΩ
1kΩ
150kΩ
1kΩ
C104
0.33μF
⑰
LD
Q101
2SD1664
C124
0.1μF
LD1
R101
10Ω
R102
12Ω
C101
(100μF/6.3V)
5V
⑱
5V
5V
CONT
Q102 UMD2N

Fig.2 : APC CIRCUIT

2) RF Amp, RF AGC Amp

The photo-detector outputs (A+C) and (B+D) are added, amplified, and equalized in IC101 and output to the RFI pin. (The eye pattern can be checked at this pin.)

The RFI voltage low-frequency component is:

RFI = (A+B+C+D) x 3.22

R111 is the offset resistor for holding the RFI signal in the pre-amp's output range. The RFI signal is AC coupled and input to Pin 4 (RFIN pin).

This IC contains an RF AGC circuit, which holds the RFO output at Pin 2 at a fixed level (1.2 ± 0.2Vp-p). This RFO signal is used in the EFM, DFCT, and MIRR circuits.

3) EFM Circuit

This circuit, "squares" up the analog RF signal into a digital EFM signal. In order to ensure minimum errors it is necessary to use a feedback circuit to match the DC level of the threshold to the center of the RF waveform.

This circuit uses the fact that the EFM signal should have no DC component. By feeding back the EFM signal's DC level the threshold level changes until the DC level is zero and the threshold, by definition, is at the exact center of the RFO waveform. The filtering in the feedback has been adjusted to ensure minimum error. The EFM signal is output from Pin 35. The signal is a 2.5Vp-p amplitude signal centering on REFO.

4) DFCT (Defect) Circuit

The DFCT circuit detects defects on the disc surface, and outputs a "H" signal from Pin 33.

If there is dirt on the disc, drop outs may appear. The DFCT signal output is input to the servo LSI HOLD pin and the focus and tracking servo drives are held while the DFCT output is "H" in order to improve playability.

5) RFOK Circuit

This circuit produces the signal indicating the focus close state during play and the timing for closing the focus servo. This signal is output from Pin 32. This RFOK signal output is input to the servo LSI RFOK pin and the focus close command is issued by the servo LSI. This signal is high during play when the focus is closed.

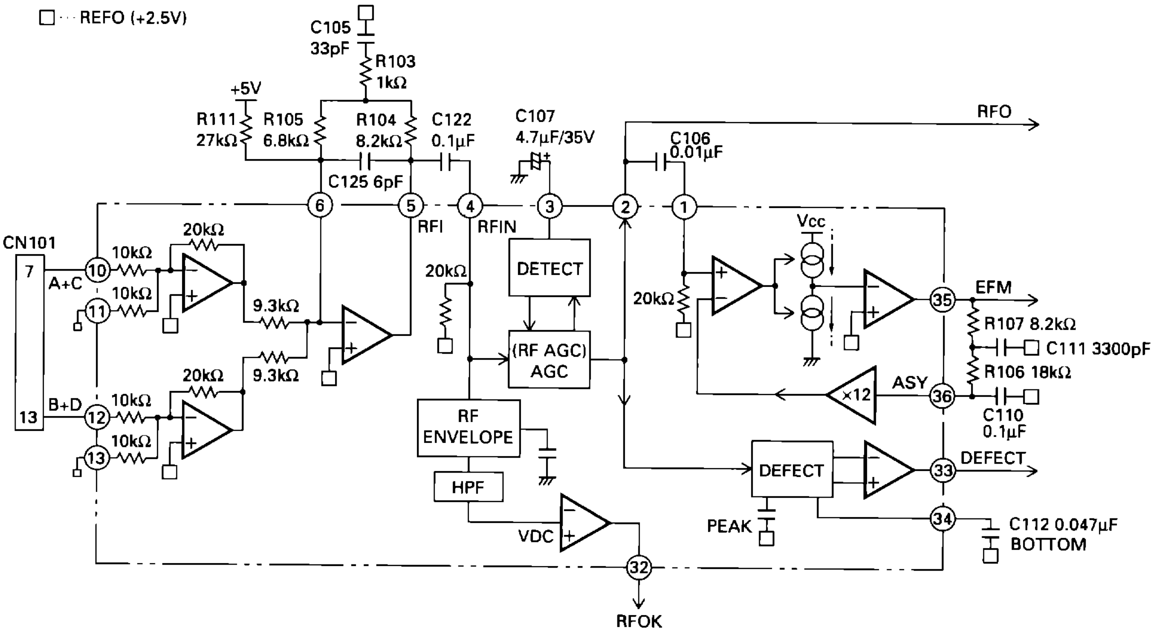

□ ··· REFO (+2.5V)
C105 33pF
R103 1kΩ
+5V
R111 27kΩ
R105 6.8kΩ
R104 8.2kΩ
C122 0.1μF
C107 4.7μF/35V
C125 6pF
C106 0.01μF
RFO
CN101
7
A+C
13
B+D
10kΩ
20kΩ
9.3kΩ
RFI
RFIN
DETECT
(RF AGC) AGC
RF ENVELOPE
HPF
VDC
Vcc
EFM
R107 8.2kΩ
C111 3300pF
R106 18kΩ
ASY
×12
C110 0.1μF
DEFECT
DEFECT
PEAK
C112 0.047μF
BOTTOM
RFOK
⑥ ⑤ ④ ③ ② ① ⑩ ⑪ ⑫ ⑬ ㉜ ㉝ ㉞ ㉟ ㊱

Fig.3 : RF AMP, RF AGC, EFM, DFCT, RFOK CIRCUIT

6) Focus Error Amp

The photo-detector outputs (A+C) and (B+D) are passed through a differential amp, and an error amp and (A+C-B-D) is output from Pin 28 as the FE signal. The FEY voltage low-frequency component is:

$$\mathrm{FEY} = (A+C-B-D) \times \frac{20k\Omega}{10k\Omega} \times \frac{90k\Omega}{68.8k\Omega} \times \frac{R108}{17.2k\Omega}$$

: (PU FE level × 5.02)

An S curve of about 1.6Vp-p is obtained with REFO as the reference. The final-stage amp cutoff frequency is 12.4kHz.

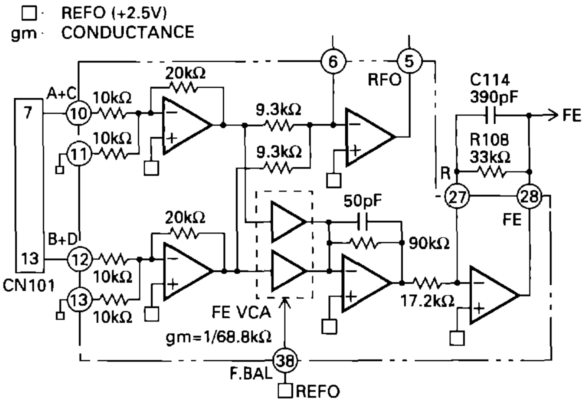

□ · REFO (+2.5V)
gm · CONDUCTANCE
A+C
B+D
7
13
CN101
10
11
12
13
10kΩ
10kΩ
20kΩ
20kΩ
10kΩ
10kΩ
9.3kΩ
9.3kΩ
6
5
RFO
C114
390pF
FE
R108
33kΩ
R
27
28
FE
50pF
90kΩ
17.2kΩ
FE VCA
gm=1/68.8kΩ
38
F.BAL
REFO

Fig.4 : FOCUS ERROR AMPLIFIER

7) Tracking Error Amp

The photo-detector E and F outputs are passed through a differential amp and an error amp and (E-F) is output from Pin 24 as the TE signal.

The TEY voltage low-frequency component is:

$$\mathrm{TEY} = (E-F) \times \frac{63k\Omega}{(31k\Omega+16k\Omega)} \times \frac{R109}{17k\Omega}$$

: (PU TE output level × 5.36)

The TE waveform of about 1.5Vp-p with REFO as the reference is obtained as the TE output (Pin 24). The final-stage amp cutoff frequency is 19.5kHz.

8) Tracking Zero Crossing Amp

The tracking zero crossing signal (below, TEC signal) is the TE waveform (Pin 24 voltage) amplified four times and is used to find the zero crossing points of the tracking error with the UPD63702GF servo LSI. This zero crossing point is found for the following two reasons.

(1) To count tracks for carriage moves and track jumps

(2) To detect the direction in which the lens is moving for tracking closing (This is used in the tracking brake circuit, described Page 9 b).)

The TEC signal frequency range is 500Hz - 19.5kHz.

TEC voltage = TE level × 4

In other words, the TEC signal level is calculated at 6Vp-p. This level exceeds the op-amp's output range and the signal is clipped, but this can be ignored because this signal is used by the servo LSI only at the zero crossing point.

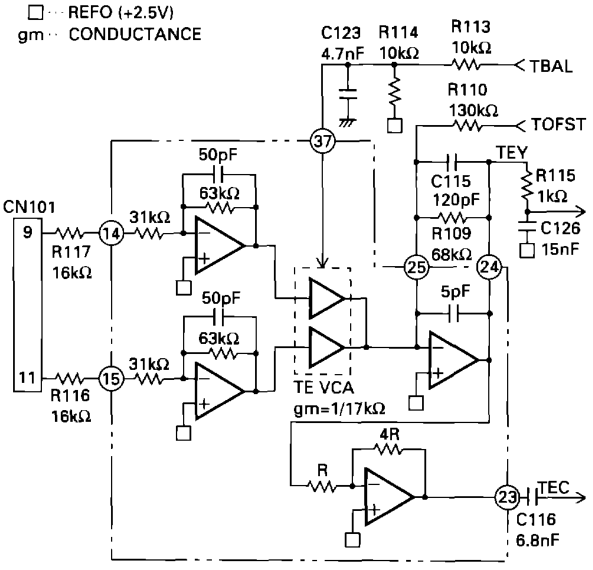

□ ·· REFO (+2.5V)
gm ·· CONDUCTANCE
C123
4.7nF
R114
10kΩ
R113
10kΩ
TBAL
R110
130kΩ
TOFST
37
TEY
C115
120pF
R115
1kΩ
C126
15nF
R109
68kΩ
25
24
CN101
9
11
R117
16kΩ
R116
16kΩ
14
15
31kΩ
31kΩ
50pF
63kΩ
50pF
63kΩ
5pF
TE VCA
gm=1/17kΩ
4R
R
23
TEC
C116
6.8nF

Fig.5 : TRACKING ERROR AMPLIFIER & TRACKING ZERO CROSSING AMPLIFIER

9) MIRR (Mirror) Circuit

The MIRR signal shows the on track and off track data and is output from Pin 31.

When the laser beam is

On track: MIRR = "L"

Off track: MIRR = "H"

This signal is used in the brake circuit, described Page 9 b).

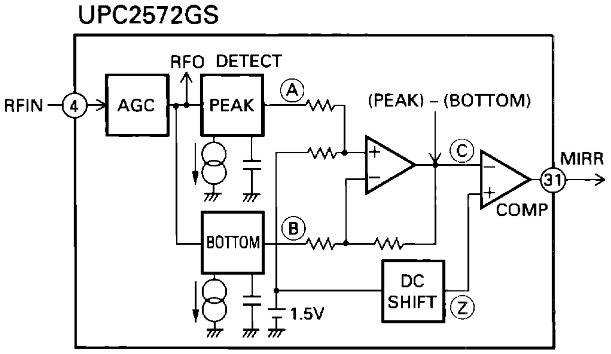

UPC2572GS
RFIN
4
AGC
RFO DETECT
PEAK
A
(PEAK) – (BOTTOM)
C
MIRR
31
COMP
B
BOTTOM
DC
SHIFT
Z
1.5V

Fig.6 : MIRR CIRCUIT

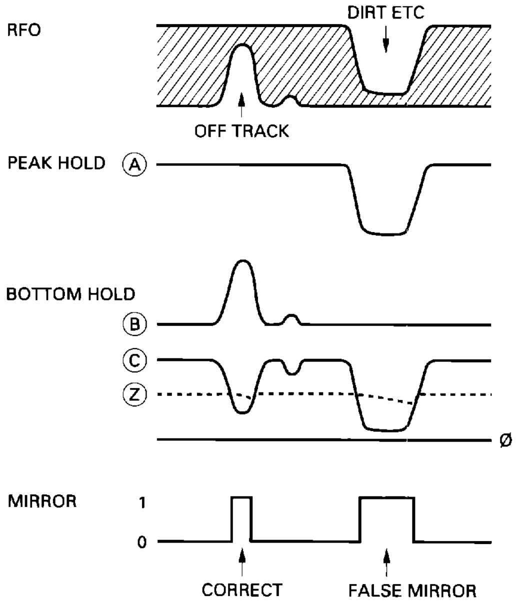

RFO
DIRT ETC
OFF TRACK
PEAK HOLD A
BOTTOM HOLD
B
C
Z
Ø
MIRROR
1
0
CORRECT
FALSE MIRROR

Fig.7 : MIRR CIRCUIT & SIGNAL DIAGRAM

10) 3TOUT Circuit

This circuit detects variations of the RF signal when an external interference is input into the focus servo loop and outputs the phase difference between the FE signal and the RF level variation signal from Pin 30. The signal has been passed through a low-pass filter (fc = 40Hz). This signal is used for the FE bias automatic adjustment, described Page 12 4).

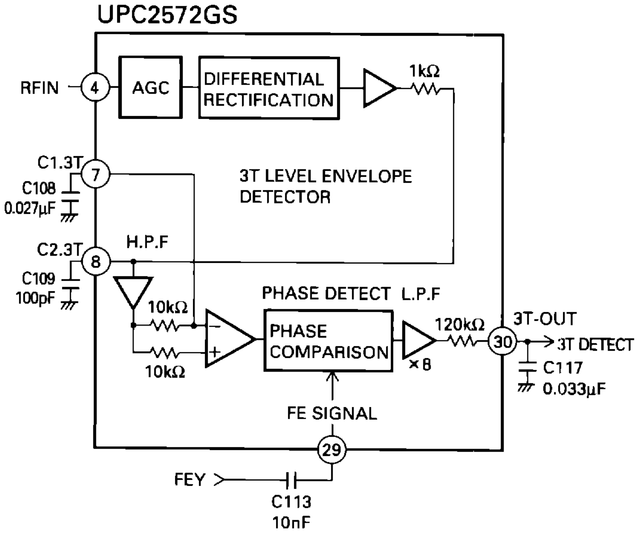

UPC2572GS
RFIN
4
AGC
DIFFERENTIAL RECTIFICATION
1kΩ
C1.3T
7
C108
0.027μF
3T LEVEL ENVELOPE DETECTOR
C2.3T
8
C109
100pF
H.P.F
PHASE DETECT
L.P.F
10kΩ
10kΩ
PHASE COMPARISON
120kΩ
×8
30
3T-OUT
3T DETECT
C117
0.033μF
FE SIGNAL
29
FEY
C113
10nF

Fig.8 : 3T OUT CIRCUIT

1.2 SERVO SECTION (UPD63702GF: IC201)

This section can be divided into two parts.
One is the servo processing section, which handles such servo controls as error signal equalizing, in focus, track jump, and carriage move. The other is the signal processing section, which handles data decoding, error correction, and interpolation processing.
This IC converts the FE and TE signals from analog to digital and outputs the focus, tracking, and carriage drive signals via the servo block. Also, the EFM signal from the pre-amp is decoded in the signal processing section and finally output as audio signals after D/A conversion. (This IC has a built in audio digital-analog converter.) The decoding process also creates the spindle servo error signals, which is fed to the spindle servo block to create the spindle drive signal.
The focus, tracking, carriage, and spindle drive signals are then amplified by IC301, XLA6997FP and fed to their respective actuators and motors.

1) Focus Servo System

The main focus servo equalizer is in the UPD63702GF. Figure 9 is the focus servo block diagram.
In the focus servo system, the lens must be brought within the in-focus range for focus closing. Therefore, the lens is raised and lowered according to the triangular focus search voltage to find the focus point. During this time the spindle motor is kicked and kept rotating at a set speed.
The servo LSI monitors the FE signal and the RFOK signal and automatically carries out the focus close operation at the appropriate point.
Focus closing is carried out when the following four conditions are all met.
(1) The lens is moving from far to near toward the disc surface.
(2) RFOK = H
(3) The FZD signal (within the IC) is latched at high.
(4) FE = 0 (REFO reference)

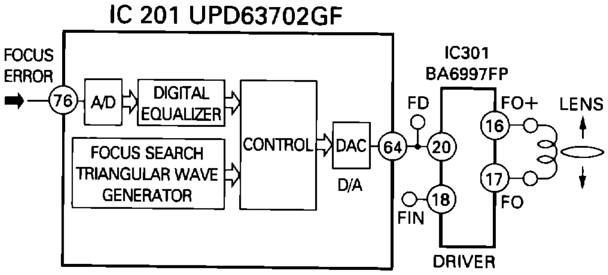


Fig.9 : FOCUS SERVO BLOCK DIAGRAM

When the above conditions are all met and the focus is closed, the XSO signal is shifted from high to low, then 40ms later, the microcomputer begins to monitor the RFOK signal that is passed through the low pass filter.

When the RFOK signal is judged to be low, the microcomputer carries out various actions such as protection.

Figure 10 shows the series of operations for focus closing (for the case where focus cannot be closed.) Also, in focus-mode-selection during test mode when the display is 01, if the focus close button is pressed, the S curve, search voltage, and actual lens movements can be checked.

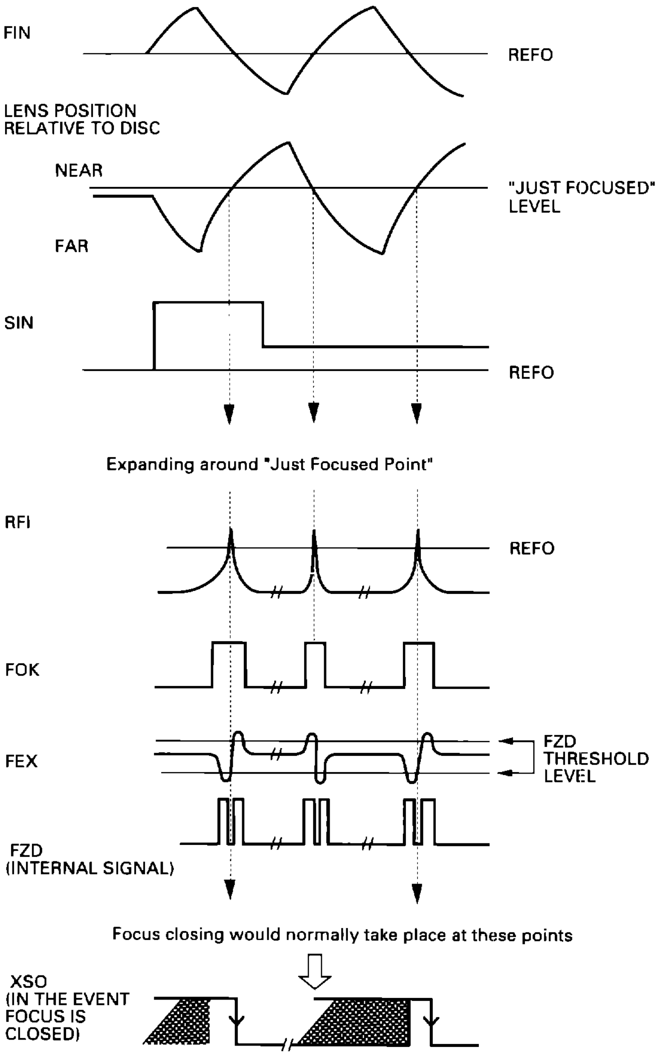

FIN
REFO
LENS POSITION RELATIVE TO DISC
NEAR
"JUST FOCUSED" LEVEL
FAR
SIN
REFO
Expanding around "Just Focused Point"
RFI
REFO
FOK
FEX
FZD THRESHOLD LEVEL
FZD (INTERNAL SIGNAL)
Focus closing would normally take place at these points
XSO (IN THE EVENT FOCUS IS CLOSED)

Fig.10 : FOCUS CLOSING SEQUENCE

2) Tracking Servo System

The main tracking servo equalizer is in the UPD63702GF. Figure 11 is the tracking servo block diagram.

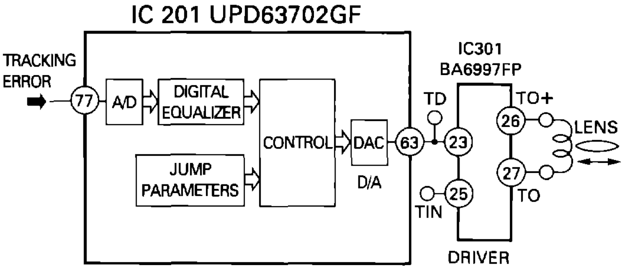

IC 201 UPD63702GF
TRACKING ERROR
77
A/D
DIGITAL EQUALIZER
JUMP PARAMETERS
CONTROL
DAC
D/A
63
IC301
BA6997FP
TD
23
TIN
25
TO+
26
27
TO
LENS
DRIVER

Fig.11 : TRACKING SERVO BLOCK DIAGRAM

a) Track Jump

When the LSI receives the track jump command from the microcomputer, the track jump is carried out automatically by the auto sequence function within the LSI. This system has six types of track jumps used for searches: 1, 4, 10, 32, 32 × 2, and 32 × 3. In test mode, in addition to these jumps, CRG moves can be executed and checked by mode selection. For track jumps, the microcomputer sets half of the total number of jumps (2 tracks for a 4 track jump) and counts the set number of tracks using the TEC signals. From the point when it has counted the set number of tracks, it outputs the brake pulse for a fixed period of time (set by the microcomputer) to stop the lens. In this way, it can close the tracking and continue normal play.

To improve the servo loop re-closing performance just after track jump, the brake circuit comes on for 60ms after the end of the brake pulse and the tracking servo gain is increased.

Fast forward and reverse operations in normal mode are realized by executing consecutive single track jumps. The speed is about 10 times as high as in normal play.

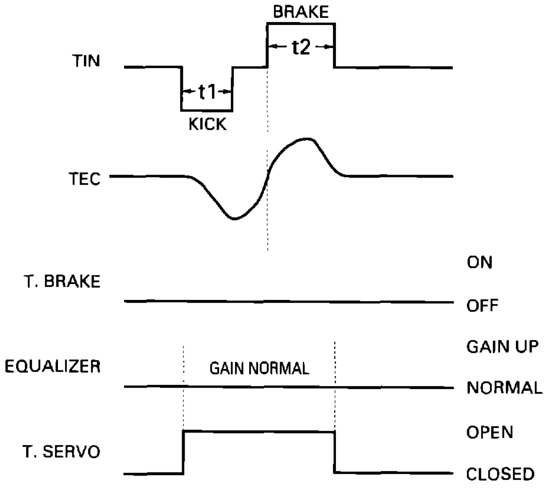

BRAKE
TIN
t2
t1
KICK
TEC
T. BRAKE
ON
OFF
EQUALIZER
GAIN NORMAL
GAIN UP
NORMAL
T. SERVO
OPEN
CLOSED

Fig.12 : SINGLE TRACK JUMP

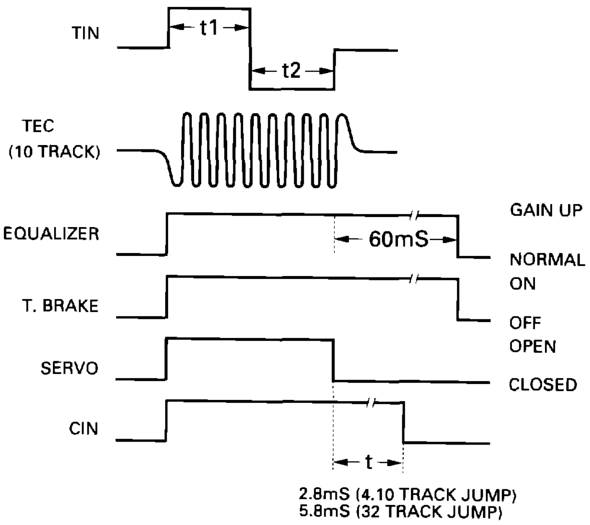
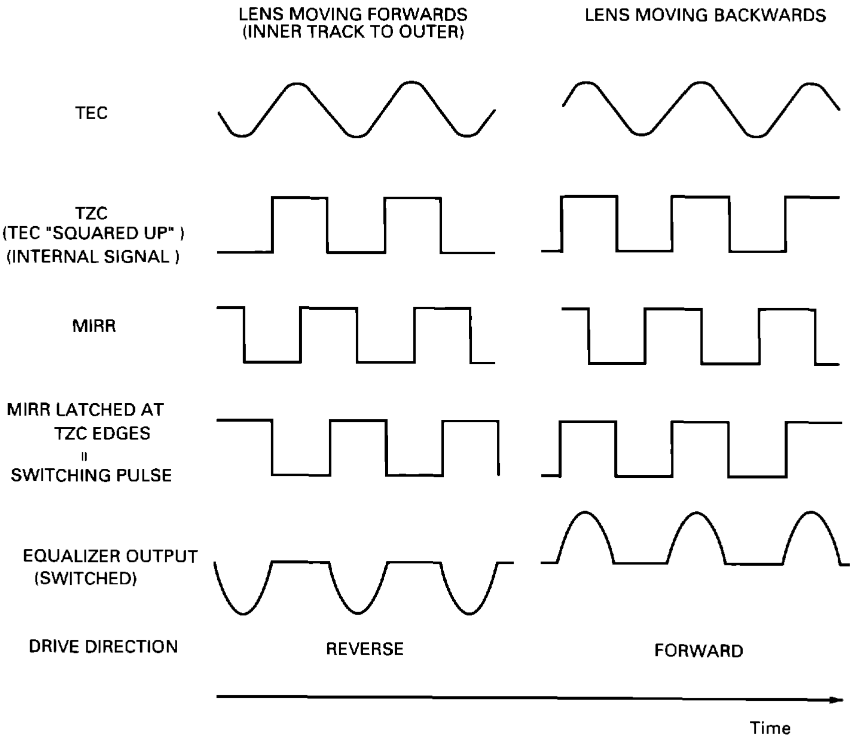

TIN
t1
t2
TEC
(10 TRACK)
EQUALIZER
60mS
GAIN UP
NORMAL
T. BRAKE
ON
OFF
SERVO
OPEN
CLOSED
CIN
t
2.8mS (4.10 TRACK JUMP)
5.8mS (32 TRACK JUMP)

Fig.13 : MULTI-TRACK JUMP

b) Brake Circuit

This relies on determining which direction the lens is moving and only outputting the portion of the drive waveform which acts to oppose this motion. Direction of motion is deduced from TEC and the MIRR signal and knowledge of their phase relation.


LENS MOVING FORWARDS
(INNER TRACK TO OUTER)
LENS MOVING BACKWARDS
TEC
TZC
(TEC "SQUARED UP")
(INTERNAL SIGNAL)
MIRR
MIRR LATCHED AT
TZC EDGES
II
SWITCHING PULSE
EQUALIZER OUTPUT
(SWITCHED)
DRIVE DIRECTION
REVERSE
FORWARD
Time

Note: Equalizer output assumed to hava same phase as TEC.

Fig.14 : TRACKING BRAKE CIRCUIT

3) Carriage Servo System

The carriage servo supplies the tracking equalizer's low-frequency component (lens position information) output to the carriage equalizer and after applying a fixed amount of gain, outputs the drive signal from the servo LSI. This signal is applied to the carriage motor through the driver IC.

When the lens offset reaches a certain level during play, the entire PU must be moved in the forward direction. Therefore, the equalizer gain is adjusted to output a voltage higher than the carriage motor starting voltage. In actual operations, a certain threshold level is set for the equalizer output within the servo LSI and the drive voltage is output from the servo LSI only when the equalizer output level exceeds that threshold level. This reduces power consumption. Also, due to disc eccentricity and other factors, the equalizer output voltage may cross the threshold level a number of times before the entire PU starts to move. In this case, the drive voltage waveform, (which is applied) from the LSI, becomes pulsative.

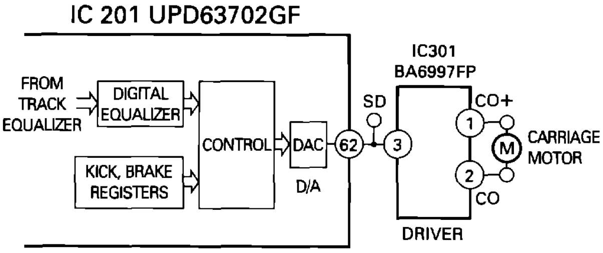

IC 201 UPD63702GF
FROM TRACK EQUALIZER
DIGITAL EQUALIZER
KICK, BRAKE REGISTERS
CONTROL
DAC
D/A
62
SD
3
IC301
BA6997FP
CO+
1
2
CO
M
CARRIAGE MOTOR
DRIVER

Fig.15 : CARRIAGE SERVO CIRCUIT

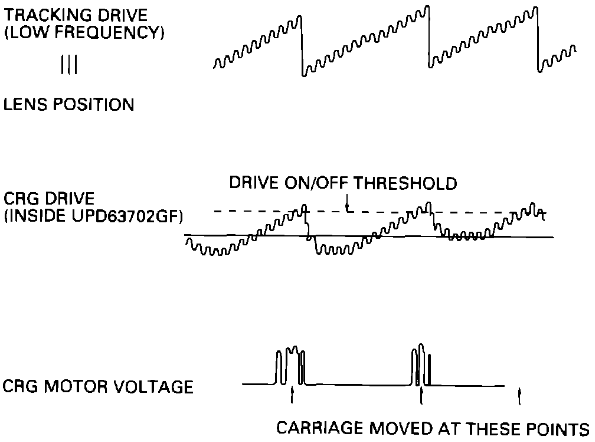


Fig.16 : CARRIAGE WAVEFORM

4) Spindle Servo System

The spindle servo has the following modes.

(1) Kick: The mode used for disc rotation acceleration during setup

(2) Offset:

a) Used during setup from the end of kick until the AGC end

b) Used during play when the focus is unlocked until it is recovered

Both of these are for holding the disc rotation rate near the normal rotation rate.

(3) Adaptive servo: CLV servo mode for normal operation

In the EFM demodulation block, the frame sync signal and internal frame counter output signal are sampled each WFCK/16 and a signal is produced indicating whether or not they match. Only after this signal is in non-match mode eight consecutive times, is the system treated as out of sync, at other times it is treated as in sync. In this adaptive servo mode, a servo mode for pulling the system into sync is automatically selected when the system is out of sync and the regular servo is automatically selected when the system is in sync.

(4) Brake: The mode for stopping the spindle motor rotation

The brake voltage is output by the microcomputer from the servo LSI. At this time, the EFM wave form is monitored within the LSI and if the longest EFM pattern exceeds a certain interval (when the rotation is slow enough), a flag is registered within the LSI and the microcomputer switches the brake voltage off. If the flag is not registered within a certain period of time, the microcomputer switches from brake mode to stop mode which lasts for a fixed period of time. In this case, ejection of the disc can only occur after this period of time.

(5) Stop: The mode used during power on and ejection

At this time, the voltage across the spindle motor is 0V.

(6) Rough servo: The mode used for carriage feed (carriage move during a long search)

The linear speed is calculated from the EFM wave form and a high level or low level is input to the spindle equalizer. In test mode, this mode is also used for the grating check.

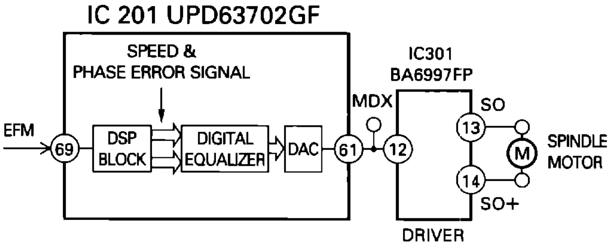


Fig.17 : SPINDLE SERVO BLOCK DIAGRAM

1.3 AUTOMATIC ADJUSTMENT FUNCTIONS

This system uses a pre-amp (UPD2572GS) and servo LSI (UPD63702GF) to automate all circuit adjustment. All adjustments are carried out automatically each time a disc is inserted or the CD mode is selected with the source key. Here is how each automatic adjustment works.

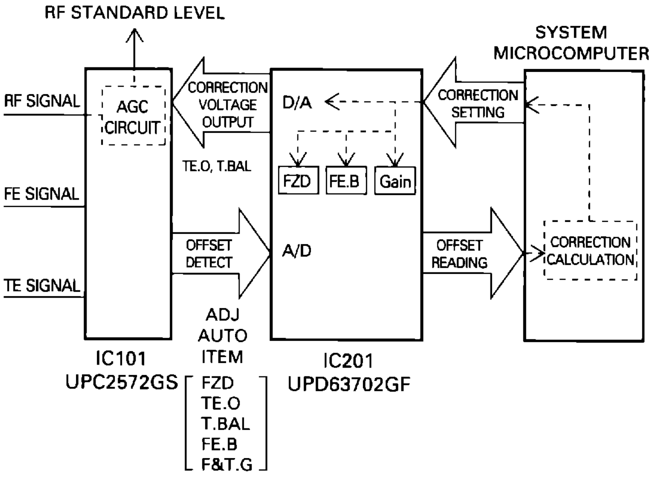


Fig.18 : AUTOMATIC GAIN CONTROL

1) FZD Cancel Setting

This setting is to make the focus closing reliable. When the power is switched on, the FE offset level is read and a voltage opposite to this offset value is written to the CRAM in the IC to cancel the offset. In this way, the FZD threshold level can be set to a constant value (+150mV) and one of the conditions within the IC for focus closing "that the FZD signal is latched at high" can be fulfilled reliably.

2) TE Offset Automatic Adjustment

This function adjusts the pre-amp TE amp offset to 0 V when the power is switched on.

The adjustment procedure is:

(1) The TE offset (LD off) is read by the microcomputer via the servo LSI (offset = TE1).

(2) The microcomputer calculates the voltage to be corrected from the value of TE1 and sets the output of Pin 65 of the servo LSI (signal name: TOFST). The concrete calculation method is as follows.
TOFST2 = TOFST1 + TE1 × R110/R109

3) Tracking Balance Automatic Adjustment

This adjustment equalizes the difference in sensitivity of the E channel and F channel of the TE output. In actual practice, the TE waveform is adjusted to be vertically symmetrical about REFO.

The adjustment procedure is:

(1) After focus closing, the lens is kicked in the radial direction to reliably generate the TE waveform.

(2) At this time, the microcomputer reads the peak and bottom of the TE waveform through the servo LSI.

(3) The microcomputer calculates the value of the offset and the correction voltage to output from Pin 66 of the servo LSI (signal name: TBAL).

(4) The voltage output from the servo LSI is input to Pin 37 of the pre-amp (IC101: UPC2572). This pin is the TEVCA amp control voltage pin. The gain for the E channel and F channel within the pre-amp is varied according to the input voltage to adjust the tracking balance and make the TE waveform vertically symmetrical about REFO.

4) FE Bias Automatic Adjustment

This adjustment is made to maximize the RFI level during play by optimizing the focus point. This adjustment utilizes the phase difference between the RF waveform 3T level signal and the focus error signal. Since an external interference is input into the focus loop, this adjustment uses the same timing as the auto gain control, explained below.

The adjustment procedure is:

(1) External interference is injected into the focus loop by command from the microcomputer (within the servo LSI).

(2) The RF signal 3T component level variation is detected within the pre-amp.

(3) The phase difference between the FE signal due to external interference input and the above 3T component is detected, to sense the focus deviation direction, and the result is output as a DC voltage from Pin 30 (3T-OUT) of the pre-amp.

(4) The 3T-OUT voltage is input to Pin 75 (A/D port) of the servo LSI and the microcomputer reads the 3T-OUT voltage through the servo LSI.

(5) The microcomputer calculates the required correction and adjusts the focus loop offset in the servo LSI.

In the same manner as the auto gain control, this adjustment is repeated a number of times to raise the adjustment precision.

5) Auto Gain Control (AGC)

This adjustment has already been used in the previous generation of CD modules. This function automatically adjusts the focus and tracking servo loop gain.

The adjustment procedure is:

(1) External interference is injected into the servo loop.

(2) The error signals (FE, TE) when the external interference is injected are passed through a band pass filter and the G1 and G2 signals are obtained.

(3) The microcomputer reads the G1 and G2 signals through the servo LSI.

(4) The microcomputer calculates the required correction and adjusts the loop gain within the servo LSI.

To raise the adjustment precision, the same adjustment procedure is repeated a number of times.

6) Initial Adjustment Values

All the automatic adjustments use the previous adjustment value as the initial value as long as the microcomputer power supply is not cut off (the backup is not cut off). If the backup is cut off, automatic adjustment does not start from the previous adjustment value, but rather from the default setting.

7) The Coefficient Display for Adjustment Result

The results of all automatic adjustments can be displayed and checked in test mode.

The coefficient displays for each automatic adjustment are as follows.

(1) FZD cancel, TE.OFST cancel, T.BAL, FE.bias

Reference value = 32 (A coefficient of 32 indicates that no adjustment was necessary).

The display is in units of about 40mV.

Example: FZD cancel coefficient = 35

35-32 = 3   3 × 40mV = 120mV

Since the corrected value is approximately + 120mV, the FE offset before adjustment was - 120mV.

(2) Focus and tracking gain adjustment

Reference value: Focus = 13, tracking = 20

The coefficient display shows the gain derease relative to the reference value.

Example: AGC coefficient = 40

Gain = 20log (20/40) = - 6dB

1.4 POWER SUPPLY AND LOADING SECTION

The power supply within the system makes the loading motor drive power supply VM (7.6V) and 5V Reg IC power (6.9V) from VD (8.3V) supplied by the mother board. The disc detection LED drive voltage and the CD driver IC power supply use VD directly.

The microcomputer switches the CD driver and laser diode on/off with "CONT" and switches the 5V power on/off with "CD5VON". There is no particular control pin for the loading motor driver, but the "EJ" and "LOAD" input signals serve the same role.

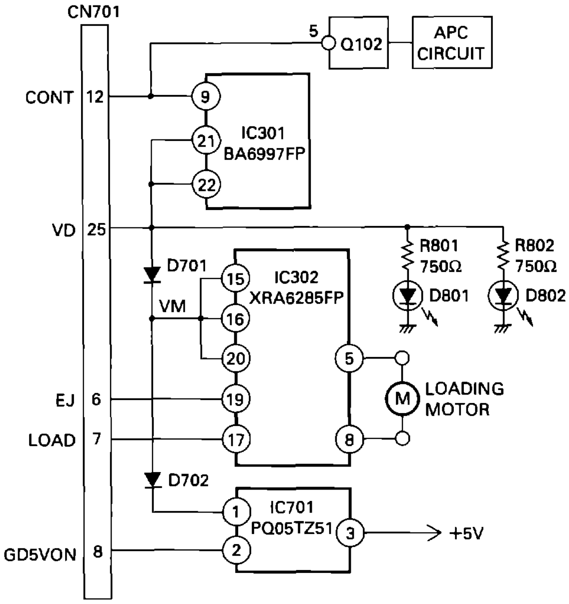

CN701
CONT
12
VD
25
EJ
6
LOAD
7
GD5VON
8
5
Q102
APC CIRCUIT
9
21
22
IC301
BA6997FP
R801
750Ω
R802
750Ω
D801
D802
D701
15
16
20
19
17
IC302
XRA6285FP
VM
5
8
M
LOADING MOTOR
D702
1
2
3
IC701
PQ05TZ51
+5V

Fig.19 : POWER SUPPLY & LOADING SECTION

2. THE SUMMARY OF STRUCTURE

● Disc Loading Operations

1. There are two photo transistors before and after the rubber roller that conveys the disc. They receive light from the corresponding two LEDs. (When light is received, the photo transistor voltage is low.)
2. When a disc is inserted to just before the rubber roller, the front section photo transistor (P1) voltage goes high and the loading motor drive starts.
3. The drive power of the motor is transmitted by gear and the rubber roller rotates to transport the disc.
   The rubber roller is at one end of the loading arm and lifts up the guide arm. The guide arm is positioned by two springs. Therefore the guide arm and the rubber roller provide the appropriate pressure to feed out the disc between them.
4. The clamper arm also has a disc centering mechanism that discriminates the size of the disc and clamps the disc at the center of the spindle motor. The centering arms form a set left and right on the clamper arm and can move centering on their pivots. At the end of the centering arms are the lock arms. (The lock arms rotate about the centering pins and are locked to the clamper arm for 8cm discs.)
   For 12cm discs, the lock arms are unlocked and move to the position indicated in Figure 21.
   The detection arm, which has its center of rotation on the centering arm on the right side of the diagram, has different positions for 8cm and 12cm discs. When one of these discs is positioned on the spindle, the detection arm moves clockwise according to the external diameter of the disc and moves the detection lever to the bottom side of the figure.

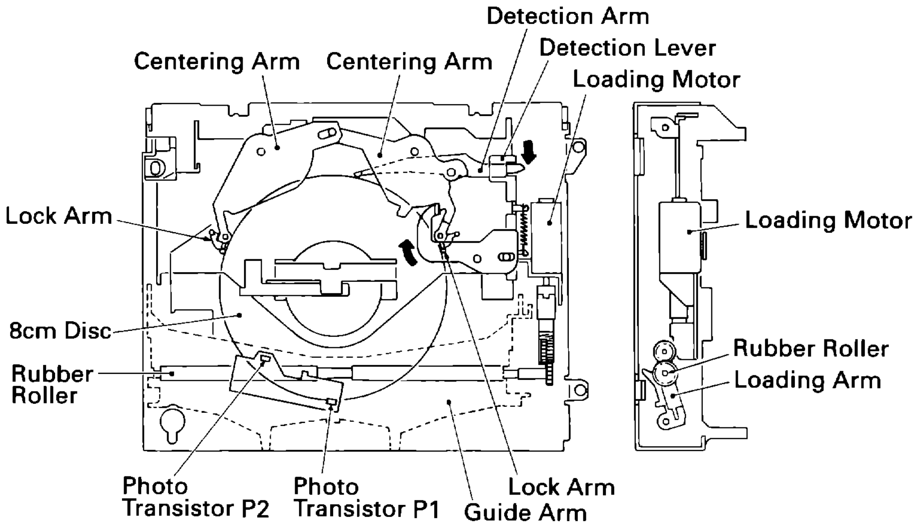

Detection Arm
Centering Arm
Centering Arm
Detection Lever
Loading Motor
Lock Arm
Loading Motor
8cm Disc
Rubber Roller
Rubber Roller
Loading Arm
Photo Transistor P2
Photo Transistor P1
Lock Arm
Guide Arm

Fig.20

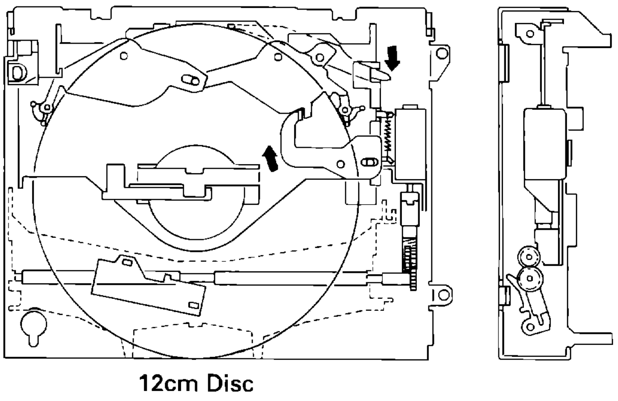


Fig.21

● Clamp Operation

The rack gear touching the detection lever meshes with the gear driven by the loading motor and rotates the L arm in the direction of the arrow in Figure 23. The clamper arm, lifted up by the L arm, descends and clamps the disc. Also, the lock lever linked with the L arm moves the loading arm.

Because of this, the rubber roller descends, separating from the disc. At the same time the guide arm also descends. Loading ends at the position where the lock lever switches on the clamp switch.

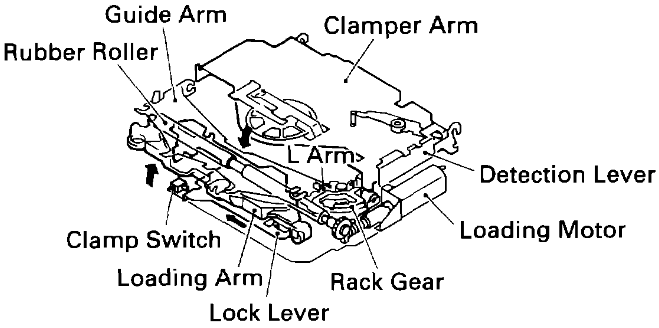


Fig.22

● Mechanism Lock Operation

1. In the eject state, both ends of the loading arm touch the bottom of the frame, the floating section front side is pushed down against the resistance of the mechanism suspension spring, and the disc insertion height position is found.
   For play, the loading arm rotates and the separation of the two ends from the frame bottom releases the floating section.

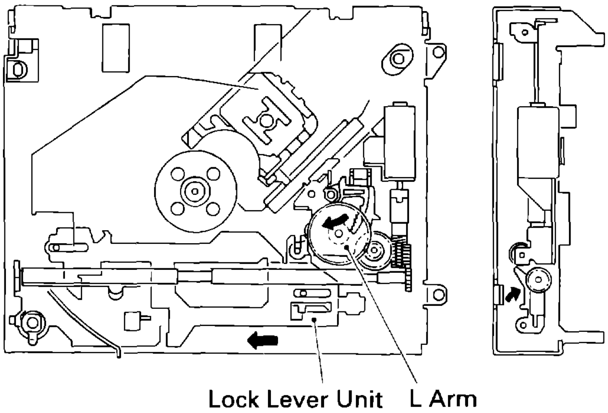


Fig.23

● Eject

1. The eject mechanism operates by reversing the rotation which takes place when the loading motor loads. The L arm moves and operates the mechanical lock, the clamp is released, the roller is applied, and the disc is conveyed. Loading stops when the photo transistor to the rear of the rubber roller (P1) is illuminated.
   However, in case of an 8cm disc, motor revolution stops a fixed period of time after P2 is illuminated. The disc type is recognized during play, by the voltage of the photo transistor (P1) located in front of the rubber rollers.

3. DISASSEMBLY AND ASSEMBLY

Remove in the order of the circled numbers in the disassembly diagram.

1. Remove the CD Mechanism Module

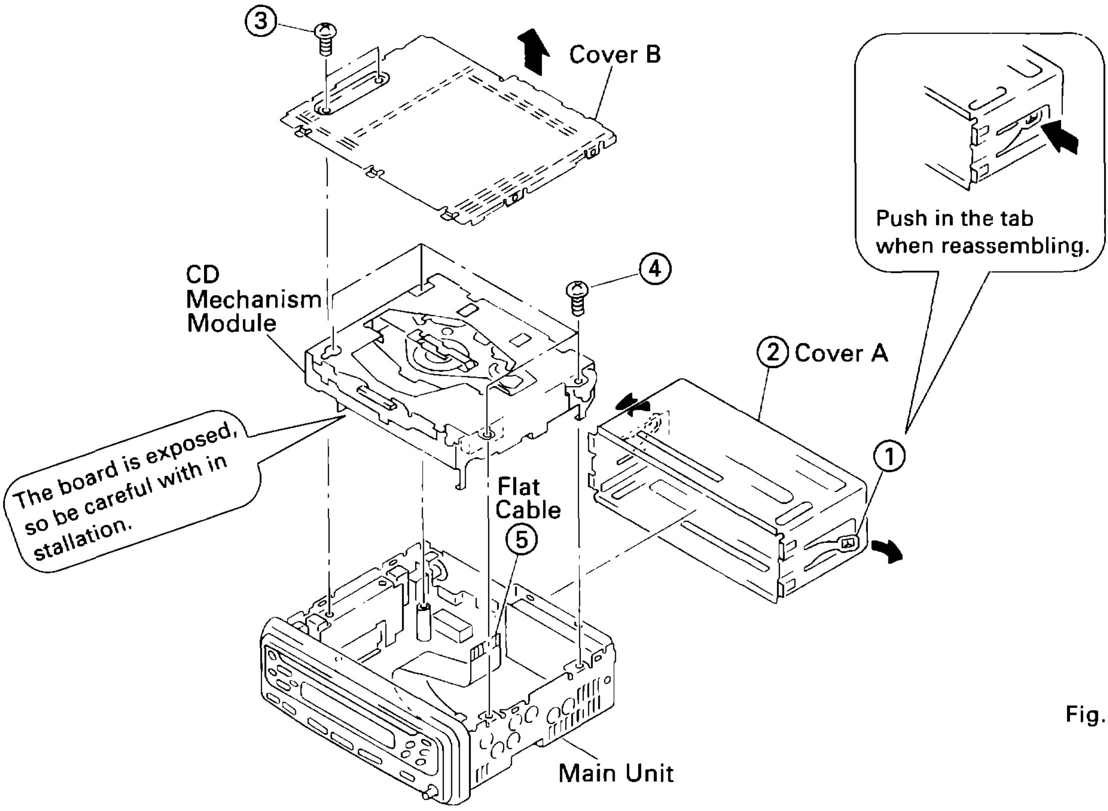

③
Cover B
Push in the tab when reassembling.
CD Mechanism Module
④
② Cover A
The board is exposed, so be careful with installation.
①
Flat Cable
⑤
Main Unit

Fig.24

2. Remove the Damper and the Frame Unit

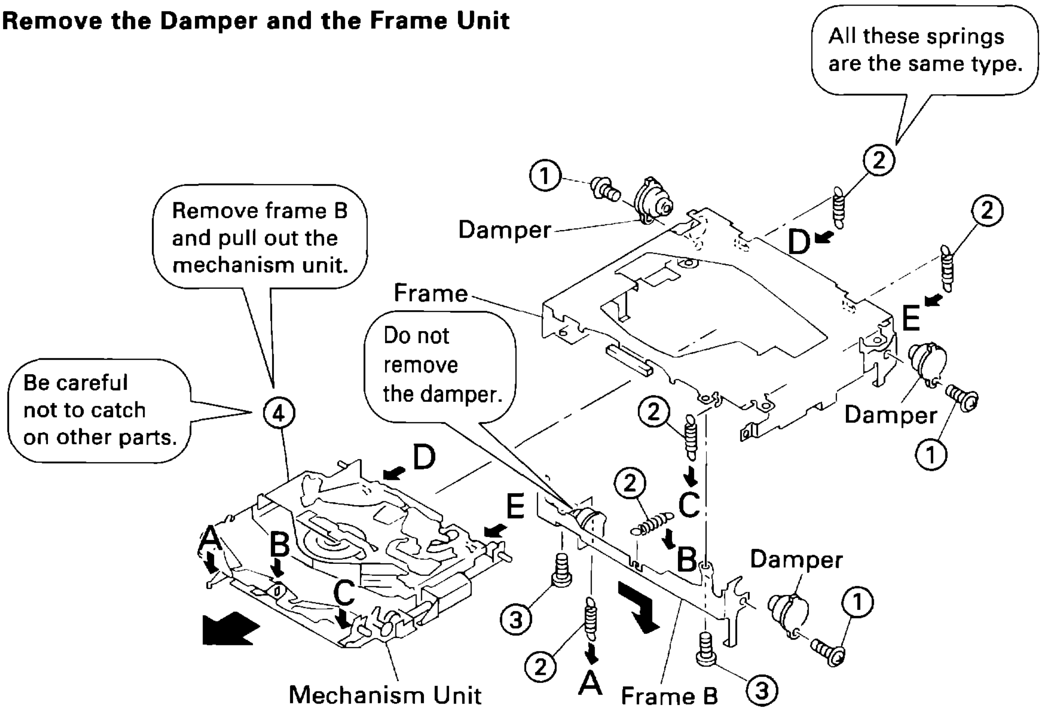
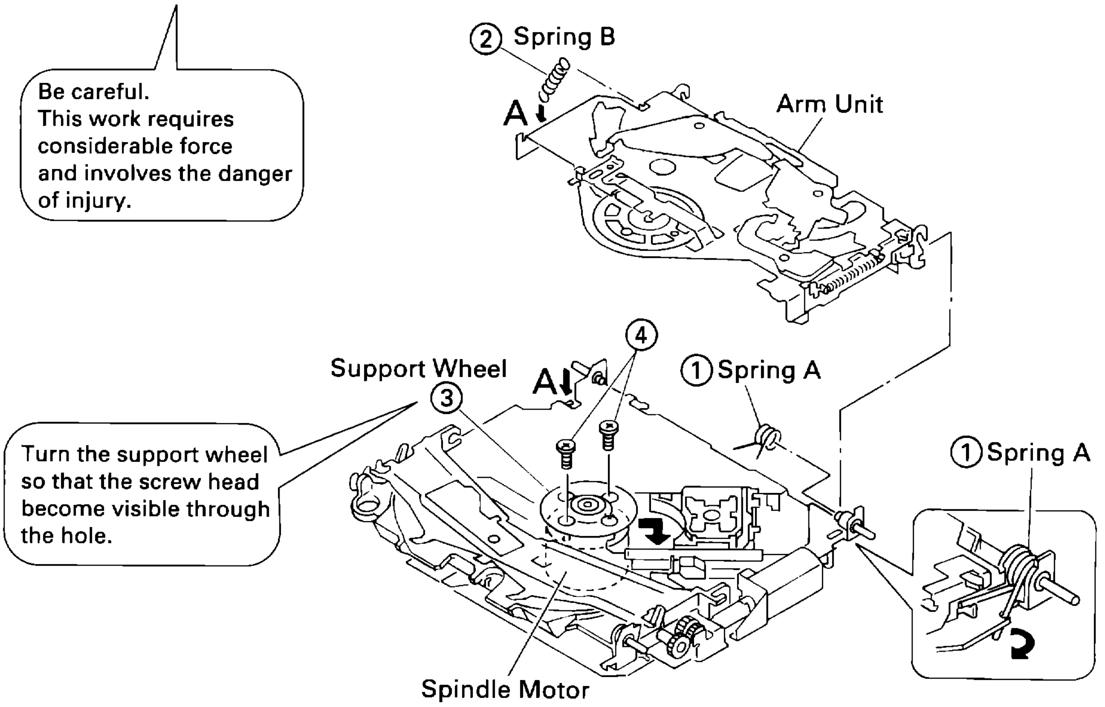

All these springs are the same type.
②
①
Damper
②
D
Remove frame B and pull out the mechanism unit.
Frame
E
Do not remove the damper.
Be careful not to catch on other parts.
④
②
Damper
①
D
②
C
E
A
B
B
C
Damper
③
①
②
A
Frame B
③
Mechanism Unit

Fig.25

3. Remove the Spindle Motor

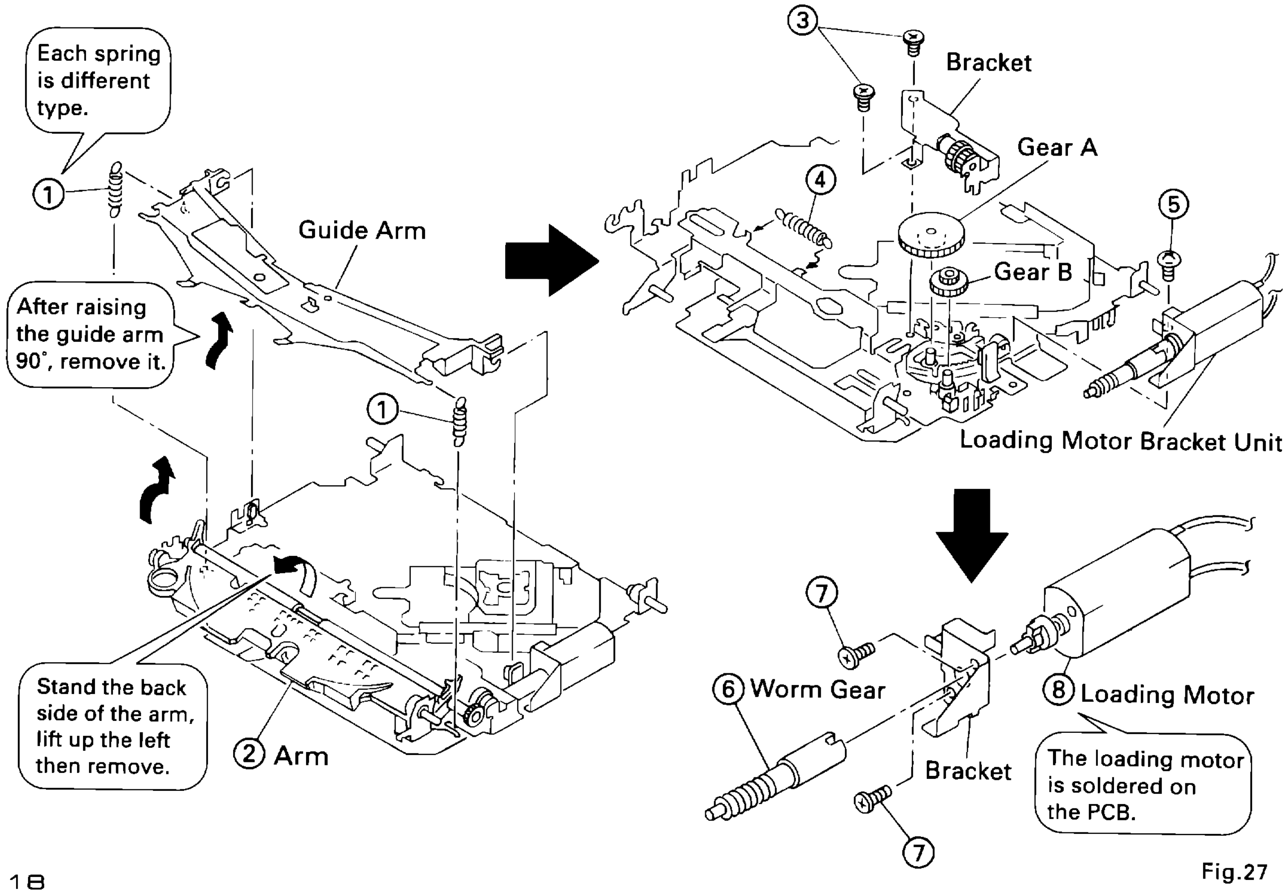

② Spring B
A
Arm Unit
Support Wheel
③
A
④
① Spring A
① Spring A
Spindle Motor

Be careful.
This work requires considerable force and involves the danger of injury.

Turn the support wheel so that the screw head become visible through the hole.

Fig.26

4. Remove the Loading Motor


①
Guide Arm
①
② Arm
③
Bracket
Gear A
④
⑤
Gear B
Loading Motor Bracket Unit
⑦
⑥ Worm Gear
⑧ Loading Motor
Bracket
⑦

Each spring is different type.

After raising the guide arm 90°, remove it.

Stand the back side of the arm, lift up the left then remove.

The loading motor is soldered on the PCB.

Fig.27

5. Remove the PU Unit and the Carriage Motor

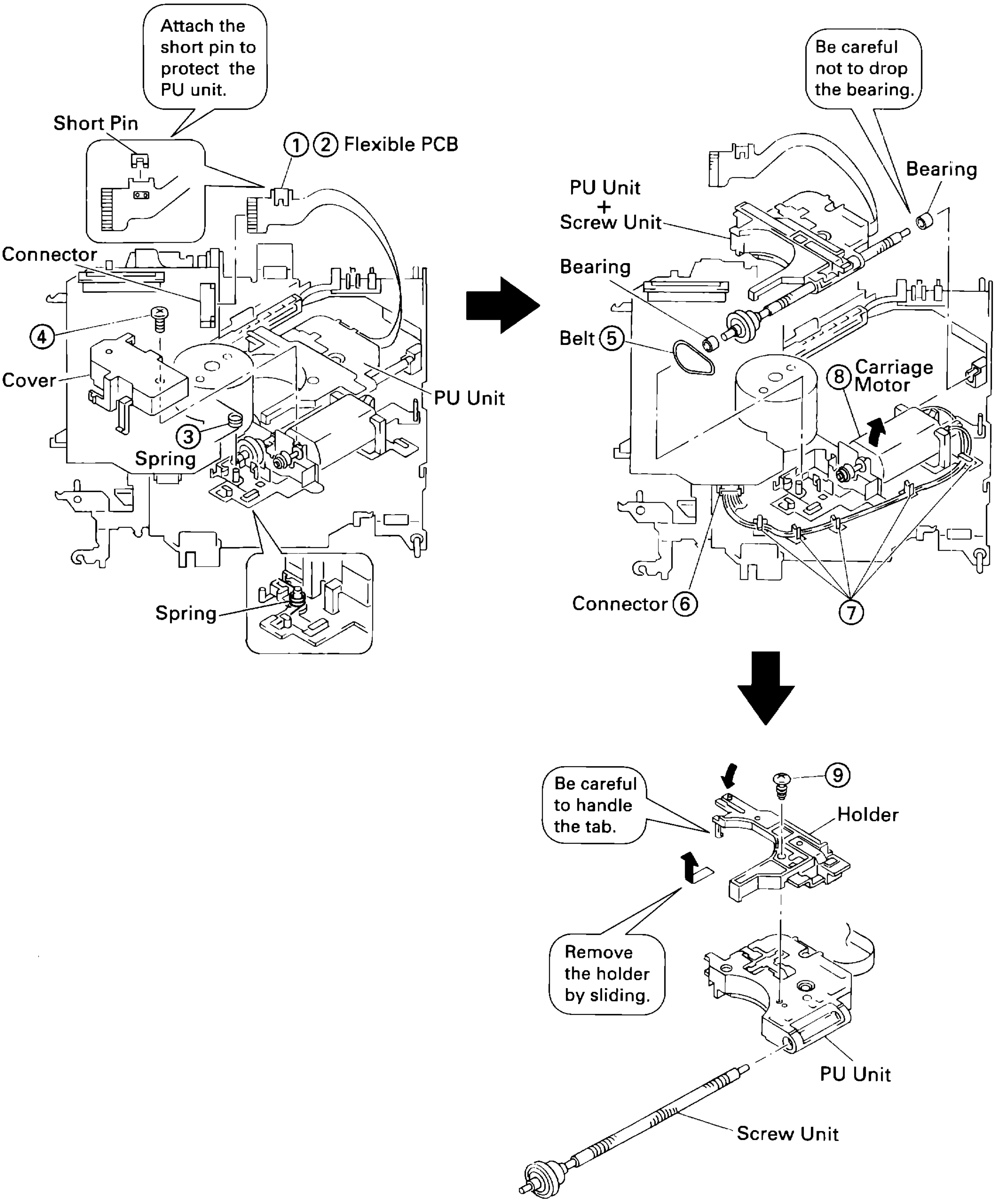

Attach the short pin to protect the PU unit.
Short Pin
①② Flexible PCB
Connector
④
Cover
③
Spring
PU Unit
Spring
Be careful not to drop the bearing.
Bearing
PU Unit + Screw Unit
Bearing
Belt ⑤
⑧ Carriage Motor
Connector ⑥
⑦
Be careful to handle the tab.
⑨
Holder
Remove the holder by sliding.
PU Unit
Screw Unit

Fig.28